

AMERICAN CINEMATOGRAPHER

THE MOTION PICTURE MAGAZIN



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January
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● The press, in September, carried the story of the balloons which broke loose from their mooring, carrying with them Paramount News cameraman Al Mingalone. It related how he was brought to ground by the popping of the balloons with rifle fire from the ground. But there is an interesting sequel to the story.

With him, Mingalone carried a Bell & Howell Eyemo. After the guy rope broke, releasing him to the mercy of the skies, he was forced to drop this Eyemo from a height of 800 feet.

The camera was later recovered, freed of the mud into which it had fallen, and found upon thorough inspection to be wholly intact without the slightest injury.

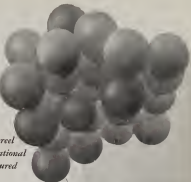
Last we be misunderstood, we believe that in this remarkable instance Mr. Mingalone's thanks to the Eyemo's sturdy construction should be shared with a kind Providence.

The Eyemo owes much of its favor among professional newsreel cameramen to its sturdy construction, its ability to stand up in grueling newsreel service. Small and compact, the Eyemo permits getting scenes impossible with larger cameras, yet can be equipped with many of the refinements of studio cameras. Mail the coupon for detailed information.

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Positives for photo of Al Mingalone, Paramount secured cameraman, run before guy rope broke, releasing him for a 1,000-foot, runaway flight. Mingalone was brought to ground safely when the balloons were punctured by rifle shots fired from the ground by Rio James J. Maline.

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1 Agfa's new Supreme Negative is *twice as fast as Superpan!* And... at the same time the grain size, color balance and gradation of this supersensitive panchromatic film are *better than Superpan!*

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AGFA SUPREME NEGATIVE

Supersensitive Panchromatic

TWO GREAT NEW 35mm. FILMS!

2 Agfa's new Ultra-Speed Panchromatic Negative is *three times as fast as Superpan!* This degree of speed increase,

heretofore inconceivable, makes Ultra-Speed the *fastest* film ever offered.

"IT'S TRUE!" SAY
THE CAMERAMEN

ULTRA-SPEED, originally designed to answer the requirements of newsreel photography, won instant approval in New York, and is eagerly sought for all types of news-recording.

OFFERS MANY POSSIBILITIES

Its phenomenal speed—3 times that of any negative previously available—finds many fields of applications in the motion picture industry. It is being widely used in all sorts of

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FREDRIC MARCH ^{IN}
"NOTHING SACRED" ^{IN}
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AN

exclusive photograph of the
cast of *Nothing Sacred* in the
Ladies display window of the
Loew's State Theatre in
New York. *Nothing Sacred* is the latest
of a new series, produced with an MGM
budget, directed by Mitchell Leiser, and
starring Carole Lombard, Fredric March,
John H. Wood, Jr., Walter Catlett,
and others. The film is a comedy, and
is the first of a new series of films
produced by the Loew's State Theatre
Company, which is now showing
the film in its new color.

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NEW YORK, N. Y.

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Sacred
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of motion picture photography

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George Blumenthal

WASHINGTON

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sible for associated statements.

Director Frank Lloyd, center in crown hat following the chess players, is directing a sequence in Paramount's "Wells Fargo." Standing at his left shoulder, wearing white vest, is Ted Spaulk, A.S.C., director of photography. Guy Roe is the operative cameraman. Seated at the left of the group is Ralph Morgan, a pet of mint julep or something at his right hand. Mal McAlpin photographed the still.



ONCE AGAIN LLOYD RINGS BELL

By GEORGE BLAISDELL

ONCE again Frank Lloyd rings the bell, this time with his making of Paramount's "Wells Fargo." The achievement of building an excellent picture in the present instance is of all the greater significance because he is more than the subject's director. Also is he the producer.

The distinction is important. In the earlier days, when the director bulked bigger relatively than he does today—bigger by reason of his greater authority in putting a picture on the screen, in his freedom from lay interference—more often could it be said the general result was the work of one man traveling a straight and unimpeded path.

Producer-directors are comparatively few today. What Frank Lloyd has accomplished in his latest contribution to the record of the screen will go far to sustain those contenders who insist that one good man with native capacity and with training in the field in which he is working can go farther than two men equally equipped

but pulling against each other.

Cameramen are interested in the doings of Frank Lloyd—interested in him for one sufficient reason alone regardless of many others because of his well-known belief in the large measure of assistance brought to a director by the man behind the camera that is recording his work.

It will be a matter for congratulation to the cameramen that Lloyd has made more than a great, a pretentious, production. He has created a subject that may be stripped of its splendor, its pageantry, its romantic and thrilling natural settings, retaining only its

fundamental human story. Yet still will it be a great motion picture.

The biting appeal to the heart submerges the glorious appeal to the eye. And that is the great test of a great film.

THE appeal of The American Cinematographer to the amateurs of the world, the international appeal, seems to be established by the hailing ports of those adventurers who send examples of their film craftsmanship across the seas and over international borders to compete with their confreres in the United States.

And Americans were allotted prizes and honors for the faithfulness with which they had brought home from foreign lands views of mountains and lake, of city and country, of historic spots, of intimate shots of the people and their customs.

Truly the camera of the amateur even perhaps as much as that of the professional is contributing to making this old world smaller.

The Front Cover

EDGAR BERGEN, A.S.C., and his mouthpiece, Charlie McCarthy, sign their term contract—or why not contracts?—with the New Universal. In a picture produced and directed by John Stahl the cameraman will start work early in the year with a cast headed by Irene Dunn.

Charlie McCarthy Scheduled for Assistant Cameraman Job

Edgar Bergen, A.S.C. Associate, Planning in the
Course of Time to Resume Making of Travel
Films in Connection with Conducting Con-
cert Troupe—Says Vaudeville's Dead

HISTORY fails to record the first cinematographer who treated his assistant a dandy and a block-head. That must remain one of the many mysteries buried with the early days of the cinema. Since then many a cinematographer has expressed or thought of those sentiments when his assistants committed the inevitable assistant's blunders.

But it is only now that a member of the American Society of Cinematographers can be counted able to use the terms with perfect accuracy. That member is Edgar Bergen, who has just been extended the honor of an associate membership in the A.S.C.; the assistant, of course, none other than the ubiquitous Charlie McCarthy.

Let it be clearly understood Bergen's interest in the cinema is by no means confined to his present occupation of chaperoning the beloved Charlie in front of major studio cameras. Quite the reverse: for Bergen practiced photography long before the misnamed McCarthy was risen from his ancestral timber.

Neither is Bergen's interest in camerawork that of an amateur. He seized upon his first camera with professional zeal (and returns) and has continued to look upon cinematography as a professional activity ever since.

The statement that he seized upon his first camera is actually a bit less than accurate, for in truth Bergen, as a schoolboy, began his camera career by appropriating a box-type plate camera which had been given to his father.

War Work as Lad

That old box outfit and its pictures added measurably to the Bergen income while Edgar made his way through high school. Pictures of school and village activities, class groups, even portraits, flowed from that first camera and its lens, more facile successors.

During the World War Eddie Bergen, too young to fight, found a useful photographic assignment nevertheless, for as the only remaining photographer in his home town of Decatur he received many official commissions to photograph injured soldiers and their properties for Governmental records.

About this time the cinema virus worked its way into his veins. That came about by the acquisition of a toy Srean projector, which he promptly re-

modelled into a camera. Even he admits that the results left something to be desired, but at the time he was thrilled as only one who screens his first self-made movies can be.

"If you looked hard," he says, "you could see definite traces of an image. On the screen the result was something like the vaguer amateur varieties of today's television. You could see a rather ill-defined shape moving about on the screen, and with patience and a little imagination you would in time identify it as a man. Of course it helped a lot if you knew beforehand I had made a picture of a man."

"I did my own laboratory work, as equipment I had made myself. I couldn't afford the price of a set of Strommen developing racks, so I made my own. I got a strip of sheet brass and filed it into a coil, then soldered it on to brass crosspieces. In shallow tanks, also of my own manufacture, the home-made racks worked very well indeed."

Fast—and Last—Flop

In due time Bergen wandered to Chicago, where he entered show business through the front of the house—literally getting himself a job as an usher in a theatre. There again the Bergen cam-



Edgar B. Bergen, directing "The Businessman" in conference with Victor Miller, A.S.C., director of photography on first subject.

cris—with in this case a good bit of Scandinavian lark—paid a profit.

Learning of Eddie's interest in photography, the manager asked him to make a picture of the theatre. Bergen gladly complied; but when the time came to exhibit a proof of the picture (shot Bergen probably wished he could show himself to the least conspicuous seat in the balcony).

The picture itself had turned out excellently, he relates, but the negative had been carefully left to dry in the sun—and it was a hot day. As might be expected, the emulsion had softened and run, until the subject thereof lodged and sagged in all the wrong places!

Note the lark, with that Viking fortitude, Bergen showed his damaged negative. And at that juncture, whoever was the Vikings' god of luck proved to be friendly on the job. "The manager looked at that picture," said Bergen recently "and to my dismay suddenly broke into raptures of laughter. When he

stopped laughing, he attacked me by offering a lot of prizes.

"He was a good showman all right, for he sent those prizes out to all his friends with the relation that his house was doing such business with the comedy that playing that it was literally rocking with laughter. In the end, I made more money from that fortuitous accident than I would had the picture been good."

Camera a Neat Ticket

During the next few years Edgar Bergen's prime interest was the difficult matter of carving himself out a career behind the footlights as a ventriloquist. But it can hardly be said that his photographic career suffered. During the summer months these dreary periods when vaudeville as it drives were characteristically "at liberty," Bergen remembered that he was also a cameraman.

Accord by this time with a stamuk, was surplus Universal camera, he harnessed up and down the country making advertising shorts and trailers for

small town merchants. You've probably seen some painted—those short ad films that small (and not-so-small) theatres used to run between shows, advertising the corner grocery, the side street garage and the spigot plumbing shoppe.

One could hardly accuse these of being parades of cinematic art, but they kept Bergen busy and eating during seasons when many of his footlight fellows were ducking landlords and haunting booking agents.

Not so long ago, only a little before Bergen and the irrepressible Charlie McCarthy were in fame, there was the De-Brie which by that time was, with an Excess, Bergen's first-string photographic team, took themselves abroad. On cruise steamer to South America and to Scandinavia, Bergen and McCarthy traveled to keep the passengers amused.

But on long cruises such as these, passengers are offered so much entertainment that even a Charlie McCarthy must have some leisure time. Bergen spent his with his cameras, taking a series of time-lapses of the places visited.

Plans for Future

And these films indicate a key to Bergen's answer to the so often asked question: "What will he do when the novelty of Charlie McCarthy wears off?"

Bergen's answer, recalled here for the first time, is this: "In spite of intensely gratifying results of some of the recent personal appearances Charlie and I have made on the stage I feel that vaudeville is dead." (This in spite of a week at Los Angeles Paramount theatre during which Edgar and his wooden framed brics all house records and added tremendously to their joint bankroll.)

"Vaudeville," continued Bergen, "is through. Today's audiences are no longer in tune with it—or it is not in tune with them. The audience still want entertainment, but they want it cast in a newer pattern. Therefore vaudeville, as such, is not included in my present plans.

"Of course I intend to keep on with my present screen and radio work. But in between these activities I am planning to try a new venture. This is a series of what might be called concert appearances. I hope eventually to form my own company and tour the country.

"Of course Charlie, not to mention other members of the family like Elmer the jodel, Sadio the little B very tough, Ophelia, and others will be back spots on these programs, and they will be surrounded by the best possible acts of other types.

To Make Travel Films

"But in addition to these I plan to make some of these travel films I have produced and photographed myself, and to give them increasingly prominent parts on the program.

"Of course there have been lots of time-lapses made and shown, but fantastically audiences never grow tired

(Continued on Page 10)



Here picture scene is joined by the re-starring of Nelson Kelly and Florence Pessell in "G-M" featuring "Kosche". Strangely enough, while they are a romantic couple, Kelly plays with Ivan Mony, while Mrs. Pessell shares with Ray Bolger. Oliver Marsh directs the photography.

Each Step Counts in Reproduction of Screen Music, Says Aalberg

LOVERS of music are getting a treat in "Hitting a New High," the RKO Radio subject in which that company's sound department does itself and the industry as a whole real credit in the manner in which it records the vocal efforts of Lily Pons.

Perhaps one very definite answer to an inquiry as to how that result was obtained may be found in the reply of John O. Aalberg, the department chief, to our query as to what the sound division actually thought of the recording and reproduction of Pons' singing in the sub-titled scene.

"Oh, we never like anything."

It is the answer of a man speaking for himself and his department who encodes a continual striving for something that is better—who accomplishes it in simple and most direct language the idiosyncrasy of the great mind which made plain to a writing world the meaning of a somewhat mystifying word.

"Garden is the capacity for taking infinite pains."

Great Advance Made

Mr. Aalberg stressed the importance of the strength of every link in the chain that reaches from the microphone in the recorder to the laboratory to the reproducing installation in the theater. He admitted that in recording and reproduction great advances had been made all along the line in the past two or three years and even in the year that is just at this writing drawing to a close.

One of the major elements in the successful reproduction of the Pons voice is the employment of the newest device, the ultra-violet recorder. By means of this there is marked improvement in the definition of the sound waves on the film—identically a parallel result following better definition of photographic images on the photographic film.

Mr. Aalberg declared another most important element contributing to the result as heard by the connoisseur at the preview of "Hitting a New High" was the reproduction delivered at the Hollywood Pantages Theatre. The pleasure that attended the performance at Pantages is one that will be denied many other listeners around the world. That will be because of the absence in so many theaters of the devices of improvement that have been installed in the local house.

Recording Vital

Yet still another vital factor in the chain of high vocal achievement is the contribution of those engaged in re-recording. It is in the replating of a bit of footage in which there is a slip from the highest quality by a bit of footage in which the quality rates 100

percent, by a maddening of the quality that rides in the re-recorder of the recording, that a department approaches nearer perfection.

Mr. Aalberg smiled slightly when by selection the thought was planted in the mind of the sound department chief. But the interviewer was curious as to the amount of cooperation extended by the singer to the crew when a picture was in the making.

"There's no complaint on our part at all," he responded. "To be sure, Miss Pons is known for having around her in responsible positions those she knows and on whose efficiency and capacity she may rely and in which she may have confidence."

Ray Hunt Photographs

Ray Hunt, A.S.C., directs the photography on the Pons subject. In the sound department Hugh McDonald guides the voice recording and Earl Mounzer the music recording.

"I gather from your remark a few minutes ago you are a firm believer in the importance of the recording section of a studio—that while you do not aim to gild the fly you are determined to render unto Lily the things that are Lily's?" the writer asked.

The department chief smiled—broadly. "Yes," he said simply. "And," he added, "I am a strong admirer of Miss Pons."



John O. Aalberg, Sound Department Chief at RKO Radio and just elected chairman for 1938 of Pacific Coast Section of Society Motion Picture Engineers.

singing. As a matter of fact I rarely miss her broadcasting." G B

Pacific Coast Section Elects

At the recent meeting of the Pacific Coast section of the engineers headed the election of John O. Aalberg as chairman, C. W. Handley was chosen for the board of managers and Gordon A. Chambers as secretary.



Lily Pons, in *Hitting a New High*, is shown in a picturesque New York night club scene—seen by RKO Radio's aluminum "Hitting a New High."—Photo by Gustav Longet

Agfa Introduces Two Super-Fast Motion Picture Negative Films

By WILLIAM STULL, A. S. C.

THE outstanding photographic news of the closing months of 1934 is undoubtedly the announcement by the Agfa-Anson Corporation of two new motion picture negative films, each rapidly faster than had hitherto been deemed possible. These two new films are, respectively, Agfa Supersne, with twice the speed of conventional supersne emulsions, and Agfa Ultra Speed Pan, with the amazing sensitivity of four times the speed of conventional emulsions.

Expressed in the familiar Weston speed ratings, these films have Weston daylight speeds of 48 for the Supersne and 96 for the Ultra Speed Pan. These ratings, it must be mentioned, are approximations, as the Weston engineers have not as yet published their official ratings for the new emulsions, but the ratings quoted have been used by the writer with success.

The remarkable thing about these two new emulsions is that they are in no sense products of hyperemulsification, but strictly normal production coatings in every way.

Equally remarkable is the fact that the tremendous increase in speed has been attained with no sacrifice of grain size, contrast, keeping quality or other normal characteristics in the case of the Supersne emulsion, and with only a slight alteration in grain size and contrast in the case of the yet faster Ultra Speed Pan. A radically new discovery in emulsion making technique is responsible for this.

New Emulsion Technique

It is well known that the making of photographic emulsions is treated by the close inter-relation of such characteristics as speed, color sensitive, grain-

size and graininess, contrast and stability or keeping quality.

Any advance in any of these must in general be backed by the sacrifice in one or more qualities permissible under the conditions of the emulsion's practical application. Thus many of the earliest panchromatic emulsions achieved their wider color sensitivity at the cost of sacrifices in contrast and other characteristics.

Similarly, considerable increases in overall speed have long been possible under normal emulsion making methods or by hyperemulsification, but only at the expense of increased grain, distorted contrast and in many instances greatly decreased stability.

Due to the new methods developed by the Agfa-Anson engineers, however, the new emulsions afford their increased speed without, as has been said, the necessity of such sacrifices.

Characteristics of Supersne

The new Agfa Supersne emulsion is intended as a general purpose emulsion for all production uses. To that end it surpasses the firm's previous Superspan emulsion, which has been withdrawn from manufacture.

As will be seen from the spectrograms reproduced in Figure 1, the color sensitivity of Supersne is virtually identical with that of the slower Superspan, which is here very closely comparable with the color response characteristics of all commonly used super-panchromatic types.

The color balance of the new emulsion is therefore fundamentally the same as that which cinematographers now consider normal.

In graduation the new emulsion is slightly more brilliant than its conventional predecessor, Agfa Superspan, as is shown in the curves reproduced in Figure 2. The contrast characteristics of the new Supersne emulsion are therefore well in line with the best modern standards.

The following time gamma information was obtained from sensitometric strips of Agfa Supersne and Superspan film, exposed in a standard time-scale sensitometer and tray developer in the Agfa No. 21 Baran developer:

Film:	Developing time			
	4 min.	7 min.	10 min.	15 min.
Agfa Supersne (gamma)	.020	.034	.077	1.06
Agfa Superspan (gamma)	.020	.034	.074	1.06

Grain Fine

The grain size and granules, characteristics of the new film are officially stated to be finer than those of conventional supersne types. Several outstanding cinematographers, including A. Farciot Edouart, A.S.C., Vernon L. Walker, A.S.C., and others who have used the new film on production, have stated that its grain was notably finer than that of conventional super-panchromatic emulsions.

The developing, fixing and drying characteristics of the new Supersne emulsion are normal. The new film requires approximately the same development time lying flat as that midway between that normally employed for the most commonly employed super-panchromatic types.

In the laboratory of one studio where the new film has been used as a production film, in which Agfa Supersne and another conventional emulsion receive a normal development of 8 minutes and the third conventional type 10 minutes, the new Supersne was found to give best normal results with approximately 8% minute development.

The keeping quality of the new Supersne is fully normal. Sensitometric tests made near the middle of December in one studio's laboratory as three separate orders of the film received over a period of two months revealed characteristic curves so closely identical they

FIGURE 3

Exposure Multiplying Factors for Written Films in Normal Daylight

Film Used	Ultra Speed	Supersne	Superspan
Agfa No. 1	1.5	1.5	1.5
Agfa No. 2	2.0	2.0	2.0
3548	4.0	4.0	4.0
5948	5.0	5.0	5.0
K 1	1.8	1.8	1.8
K 1 1/2	2.0	1.8	2.0
K 2	2.0	1.8	2.0
Meus. blue	2.5	2.5	2.5
G	2.5	3.0	3.0
21 A	3.5	4.0	4.0
25 A	2.0	5.5	6.0
B	9.0	7.0	9.0
C	10.0	7.0	9.0
C S	4.0	4.0	5.5
F	7.0	7.0	8.0
N.D. 35	1.8	1.8	1.8
N.D. 50	3.1	3.1	3.1
N.D. 75	5.4	5.4	5.4
N.D. 100	10.0	10.0	10.0
72	39.0	20.0	30.0

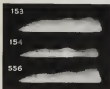


Figure 1—153, Supersne; 154, Superspan; 556, Ultra Speed Pan.

BALANCED

IN EASTMAN Super X Panchromatic Negative the vital film factors of fine grain, high speed, and superb photographic quality are combined to give the finest results to be seen anywhere today. It is the admirable balance of these qualities that has made Super X the world's most widely used negative film. Eastman Kodak Co., Rochester, N. Y. (J. E. Brulatour, Inc., Distributors, Fort Lee, Chicago, Hollywood.)

EASTMAN SUPER X

PANCHROMATIC NEGATIVE

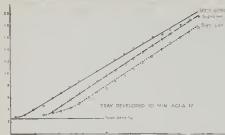


Figure 3

could virtually be plotted as a single curve.

Reduced to practical terms, the doubled speed of the new Superpan negative in comparison to conventional superpan emulsions means that the cinematographer may record the same shadow detail on any given scene with his lens-opening reduced one or one and one-half stops below the setting ordinarily used, or that he may use 16 per cent less light on the set.

The consensus of opinion among the cinematographers who have used and tested the new film appears to be that the most probable cause will be a combination of the two. With the low light levels being used by the majority of cinematographers today, about a 25 per cent decrease in illumination would seem about the maximum actually possible, without fundamental changes in individual lighting technique.

Combined with this it is generally predicted that cinematographers will make use of the film's additional speed to gain the advantages in improved focal depth and resolution to be obtained by stopping down lenses.

Agfa Ultra Speed Pan

The still faster Ultra Speed Pan is primarily a special-purpose emulsion. It was developed for the use of newsreel cinematographers, but is finding application by studio cinematographers in special camerawork under extremely adverse light conditions.

Referring to the spectrograms shown in Figure 1, it will be noted that the color sensitivity of Ultra Speed Pan is closely similar to that of standard Superpan with the exception of a slightly increased red sensitivity. As will be seen from the curves reproduced in Figure 2, it will also be noticed the contrast of this emulsion is slightly better than that of the conventional emulsion.

Film	Development time		
	5%	12	18
Agfa Ultra Speed Pan (gamma),	0.63	0.70	0.83
Agfa Superpan (gamma)	0.59	0.72	0.84

This is confirmed by the gamma data

herewith, obtained from semimetric strips made on a standard semimetric and developed in the Agfa No. 17 Box developer.

The grain size of Ultra Speed Pan is admittedly somewhat coarser than that of conventional superpan emulsions. For purpose tests except where extreme fine-grain results are required this slightly coarser grain does not appear objectionable. The developing, fixing, washing and drying characteristics of Ultra Speed Pan are normal. It requires slightly under 25 per cent longer development than Superpan for normal effects; in instances where tests of Superpan have required a normal development of 8 minutes, and the new Superpan, 5%, Ultra Speed Pan appears to require a

norm of between 9 and 10 minutes. The keeping quality of this emulsion is in every way comparable to that of any ordinary superpan type film. No refrigeration or other specialized precautions, necessary with hyperexposed emulsions, are needed.

The speed of this fastest emulsion is between three and four times that of the fastest conventional superpan types. Its primary application at present seems likely to be used for special scenes filmed under extremely adverse lighting conditions, where ordinary film, or even the faster Superpan negative could not produce results. Test scenes were exhibited at a recent A.S.C. meeting, photographed on this film under unaided practical street lighting, with normal (f5.6) lens settings and normal shutter and camera speed. These scenes on the screen gave virtually the same effect seen visually under such lighting, while comparative tests, exposed similarly on conventional Superpan, showed virtually no exposure. The speed of this emulsion should also be of value in photographing miniature at extremely high camera speeds, an application where adequate illumination is ordinarily a problem.

The introduction of these two radically new emulsions is unquestionably a noteworthy contribution to the advancement of cinematography. It is as yet too early to predict how these two new photographic emulsions will be utilized.

Both are, however, worthy of practical use, and it is probably that the cinematographers using them will, as has been the case with past developments, discover new and methods for them which will open up new fields of cinematographic art and technique.

RESEARCH COUNCIL ISSUES SOUND ENGINEERING BOOK

OVER six months of continuous effort by a group of motion picture studio sound engineers has been completed with the final editing of the book "Motion Picture Sound Engineering,"

which is being published by the Research Council of the Academy of Motion Picture Arts and Sciences and which has just come from the press.

The book, a 135 page work, which is now on sale, contains the lectures presented to the council sound course classes by Fred Allen, engineer, sound department, United Artists; L. E. Clark, now with the Dunning Process Company and formerly engineering manager, RCA Manufacturing Company; John Holland, transmission engineer, sound department, MGM; Harry Kenhall, engineer, sound department, MGM, and A. E. Hill, now of the Southern California Telephone Company and formerly acoustic superintendent, Electrical Research Products, Inc. Added material has been prepared by William Koenig, chairman of the Research Council; Wesley C. Miller and Kenneth Lombard of MGM sound department, and Major Nathan Levinson, vice chairman of the council and director of sound at WB-Film National.

It will be profusely illustrated with photographs, charts and diagrams and will be complete.

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Make-up Specialist Can Do Much To Assist the Cinematographer

By PERC WESTMORE
Head of Make-up Department, Warner
Brothers-First National Studios

Part II

PARTICULARLY do I want to emphasize that a corrective make-up cannot be adopted simply because it seems good from the viewpoint of the make-up artist alone. Like anything else in the picture, the make-up must be made to be photographed. It must be planned to coordinate with the lighting plans of the cinematographer.

Otherwise you are likely to have a make-up that is trying to do one thing to a player's face while the lighting is planned to quite a different end. The result won't reflect much credit on either.

At Warner Brothers we have found the best way to plan our make-ups is to base them as much as possible on photographic tests made with the man who is to photograph the production. Visual study of the player's face, together with study, will show us pretty well what ought to be done; but they can't show us what the cinematographer will do with his lighting, nor how he will do it. Therefore our make-up artists work in close partnership with the photographers, and due to this cooperative make-up troubles have been exceedingly rare.

Apart from the broader matter of corrective make-up, there are many little detail tricks a make-up artist can use to make things easier for the cameramen. For instance, there is the familiar problem encountered photographing players with blue eyes.

It has long been a favorite trick of some to focus a baby spotlight fitted with a magenta or even reddish gelatin on the faces of such players, to make the blue eyes photograph darker.

A Make-Up Trick

This is not always convenient, but we have found that we can simplify this problem with a little trick of make-up. If a tiny spot of red—so small as to be virtually invisible to the eyes—is placed at the inner corner of each eye, we get the same effect as though a magenta-tinted lamp were used, and the eyes pose dark.

Making up eyes, by the way, is a phase of make-up that is more or less unlearned, even by many make-up men. There is, for instance, a very common misconception that the apparent size of an eye can be increased by drawing the line of the eyebrow higher above the eye, separating brow and eye by a

distance of perhaps one and a half times the diameter of the eye.

This is definitely not true; such an exaggerated separation actually makes the eye seem smaller. If you doubt this, a simple experiment will prove it to you. Take any ordinary coin (a nickel or penny is a handy size) and on a sheet of paper trace its outline twice.

Using the same coin as a measure, space an eyebrow line one and a half diameters above one circle and another a single diameter above the other. The latter will definitely appear larger, even though you know and can prove both were drawn around the same penny. In practice we have found the best results in eyebrow make-up come when the brow is spaced almost exactly one diameter above the eye.

Solving a Problem

The use of rouge on the faces of feminine players has been the subject of a good deal of debate. At our studio we use it frequently. Not by any means for photographic effect, but for the psychological stimulus it gives the ac-

trous. When a woman arrays herself to look her best, she almost always applies at least a trace of rouge to her cheeks. Many feel actively uncomfortable without it. They are not at ease made up for a picture, minus rouge.

On the other hand, the spot of color made by any ordinary rouge would be most undesirable photographically.

We have solved this problem by using the special Technicolor rouge which was introduced at the time when Technicolor scenes were often filmed by a black-and-white camera as well as by the color camera.

This rouge presents a natural appearance to the eye and to the color camera, but it is invisible to the black-and-white camera. Accordingly, it gives the actress her mental uplift without showing any photographic effect.

It may be mentioned, too, that at Warner Brothers' all players—men included—wear make-up. In many cases the men, too, benefit as much from corrective make-up as do the women. And as you can readily appreciate, the result on the screen is much better if the men are

(Continued on Page 40)



Paul Westmore, left, makes a study of actor Paul Muni, as actor being prepared for his part in *Heaven's Desire*. Note Muni's attention to a questionable spot in his make-up.

Engineer Discusses Requirements of True Stereoscopy in Motion Pictures

By G. W. WHEELRIGHT,
Land-Wheelright Laboratories, Boston

Paper Presented at Recent Fall Meeting Society Motion Picture Engineers at New York and Now Reprinted from December Issue of That Society's Journal

THE subject of stereoscopy is age-old, as we all know. Leonardo da Vinci in some of his writings indicated that he understood the principle of two-eye pictures and the geometrical differences between what one eye saw and what the other eye saw.

The original work of making mechanical devices that would reproduce for us the stereoscopic effect we should have seen if we had been present was started between 1832 and 1833.

There is some discussion whether Mr. Eliot or Professor Wheatstone did the first work. Certainly, Eliot's suggestions were that one should hold the pictures in such a manner that one's eyes were crossed when viewing a pair of pictures, and he showed a mechanical means for preventing each eye from seeing the picture not intended for that eye. It was Wheatstone, however, who did the earliest thoroughgoing analysis of stereoscopy.

Another famous man of that period, Sir David Brewster, also gave considerable time and attention to the subject. Whereas Wheatstone had held two pictures and viewed them through apertures so adjusted that each eye saw only its own picture, Brewster conceived the idea of using first two lenses and, later, pairs of two lenses to make up the familiar device known to us all as the stereoscope.

Eye-Distance Apart

This device employed two pictures taken eye-distance apart and shown to each eye through a box-like device, each eye having its own lens focused upon its own picture. It was far simpler to use and more practicable for general use than the Wheatstone viewer.

It suffered from the serious disadvantage in close analytical work that pictures could not be substantially greater than 3½ inches in breadth, which is, roughly, the normal eye separation of the human being. Our own Oliver Wendell Holmes later suggested minor improvements employing Brewster's method of viewing.

Soon after this stereoscope enjoyed some enormous popularity, and every amateur, as well as a host of professional photographers, was taking stereoscopic pictures. Among the many possible reasons for the subsequent loss of interest

in stereoscopy, two stand out. Many persons, due to ignorance of the subject or the desire to feel the glibble public, took only one picture of the scene they were making, duplicated it, and showed it separately to each eye.

Although this duplication creates in the mind of the observer something different from the ordinary viewing of a single picture, it of course does not give true stereoscopy. The second, and perhaps more important reason for the brevity of the stereoscope's popularity, is the fact that during the observation of the picture the observer completely cuts himself off from the rest of the world.

This is essentially an unsolvable act. When viewing pictures with a party of friends, it is difficult, if not impossible, for all members of the group to enjoy simultaneously the reactions that the observer personally is enjoying.

In the case of serious study or consultation by a group of men, such as doctors viewing x-ray stereograms, these stereoscopes greatly lengthen the period of examination and consultation and often such observers subsequently do not agree to what they saw individually.

If they had all been able to look simultaneously, they could have reached a conclusion more rapidly and with less uncertainty.

It would now seem worth while to consider the requirements of true stereoscopy. The various factors that contribute to the perception of depth are:

(a) Overlap. In a single picture the branch of a tree, for instance, cuts across a person's body, thereby showing that the branch must be in front of the person, while not telling exactly how far in front.

(b) In a single picture, a noticeable concentration of detail in the foreground and lack of such detail in the background.

(c) In a single picture, the distinction in size of known objects such as telegraph poles along a roadside running off into the distance.

Lighting Enhances Depth

(d) In a single picture, haze and general blue tone of distant scenes.

(e) In a single picture, lighting effects. It is well known in the art that depth effects can be greatly enhanced by clever

lighting. A common trick of the expert photographer is to place long shadows in his pictures. Other such devices produce stronger suggestions of depth than does the amateur's usual flat lighting.

(f) Two pictures taken eye-distance apart and observed in some manner such that each eye sees its own, and only its own, picture. It is probably safe to say that no serious attempt at stereoscopy can hope to be successful unless it takes into account the fact that a person's visual perceptions of reality depend in part upon the fact that he receives not one but two sets of impressions of the outside world.

Each of these impressions is in itself clear and distinct, and has its own geometrical perspective differing from that of the other impression because of the distance apart of this hypothetical observer's eyes. In general, the appearance of the pictures as a reality rather than as an illusion is probably most satisfactory when the normal condition of viewing is rigorously observed.

Use Normal Separation

It does not follow from the fact that a separation of 2½ inches in taking the pictures produces a result far more pleasing than a single picture that therefore two or three times normal interocular separation in taking the pictures would lead to an effect two or three times as pleasing.

For photographers who do not understand in detail the geometry of stereoscopic photography and viewing, the safe rule is to use normal eye separation in taking.

Serious work in stereoscopic photography has developed into two general branches, each of which is based upon the general idea that each eye must see its own picture and only its own picture.

One general type of device for stereoscopic viewing makes use of the difference in direction from which the two eyes see the picture. This has given this method of attack much serious thought and has done the outstanding work in this field.

A result has been the parallel panoramas now seen often in draglines and department store windows. The device depends for its success upon taking

(Continued on Page 12)

ONLY THE FILLED SEATS DETERMINE WHAT THE PICTURE WILL GROSS

By encouraging theaters to show the product of the studio at its best, it is hoped to contribute to the general progress of the Motion Picture Industry. The reproduction below shows the most recent advertisement of the series now appearing monthly in leading exhibitors' journals. —NATIONAL CARBON COMPANY, INC.

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Art Reeves Shows New Ultra-Violet Recorder

DESIGNED around the "Lum-lite" ultra-violet glow lamp recently described in these columns, a completely new sound recorder has been introduced by Art Reeves, pioneer in the independent manufacture of sound and laboratory equipment.

The new recorder is perhaps the first to offer the advantages of ultra-violet light recording to the independent field, and in addition it is believed to be the first commercially available unit in which "black light" has been used for variable-density recording.

The new recorder is of the portable type. Previously intended for a fixed installation, either as a studio unit or as a sound truck, the equipment is sufficiently compact to be carried on location as a portable recording outfit.

Its adaptability is heightened by provision for complete interchangeability of driving mechanism, permitting normal operation from almost any desired power supply, including batteries, DC or AC

generators, or direct alternating current mains of almost any frequency.

To gain this flexibility, the driving motor is a separable unit, attaching to a conventional, camera-type motor mount. It is therefore possible to drive the recorder with any standard camera motor suited to the current supply available. Normally, battery-powered direct current interlock motors for recorders and cameras are supplied with the equipment.

Simple Design

As will be seen from the illustrations, the design of the new recorder has been revised to a point of high simplicity. The film is threaded past the sound sprocket, over appropriate idling rollers to the recording drum, past the take-up sprocket and the main sprocket, and into the magazine.

All of the sprockets and idling rollers run on ball bearings; the recording drum runs free and is connected to an efficient damper, of a type not affected

by temperature change. The gear trains driving the sprockets are lubricated by a single oiler; the ball bearings require no lubrication, as they are of a special self-lubricating type.

Both manual and automatic speed control are supplied. The latter is built into the recorder, rather than into the motor, and the wiring arrangement is such that it operates with any type motor. If it is desired for any reason to control the speed manually, the automatic speed control is rendered inoperative by throwing a switch in the base of the machine.

A standard footage counter and tachometer are regularly supplied, being built into the recording head on the right-hand end, while both are easily visible to the recorderist.

Facilities for Two Mikes

The amplifier is substantially the same type already familiar in Art Reeves recorders. It is contained in a compact carrying case suitable for either fixed or portable use. Facilities are provided for the use of two microphones, which may be of either the latest dynamic types, or of the condenser type, including the Reeves "Baby boom" design. Metal tubes are used throughout, making this amplifier completely non-magnetic.

The ultra-violet recording unit employed in the new Reeves "Lum-lite" glow-lamp. This, as has been described

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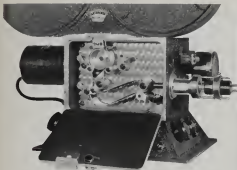


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New Art Reeves ultra-violet camera

in these pages, is a recent Reeves development, designed for installation in any standard glow-lamp recorder.

Its peak radiation is in virtually the same band of the ultra-violet spectrum as is the peak sensitivity of the newest recording emulsions. The construction of the unit is such that no physical aperture is used in this installation to produce the slit-shaped recording beam.

The light source of this tube is in itself a narrow line of light, simplifying the optical projection which forms the recording beam on the film.

The frequency response of the system is practically flat to 10,000 cycles, with a gradual taper thereafter. The amplifier has a gain of over 125 db.

Bringing the advantages of ultra-violet recording to the independent field, in Art Reeves' opinion, is only a logical step in the continued advancement of this field. "When I entered the business of manufacturing sound equipment," as points out, "independently manufactured sound equipment was designated as 'hobby' and was generally regarded as inferior."

"Today the situation is different. To

common in business today, the independent sound or laboratory equipment manufacturer must have business and engineering policies as less stable and progressive than any major firm. What is more, he must offer truly modern equipment.

"That my firm, one of the first in the field, has survived and grown has, I am sure, been due to the fact that our products were in every case engineered up to the most modern standards, not built down to a price.

"In the present instance, we have been able to produce an ultra-violet sound recorder for this market while ultra-violet recording is yet the outstanding development in major-studio sound. To do this, our facilities have been expanded and untried and every component of our recorder is built in our own factory.

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The accompanying picture shows the buildings recently constructed by Electrical Research Products, Inc. (a subsidiary of the Western Electric Company, Inc.) which are now occupied by it as laboratory, warehouse and office building in Hollywood. These buildings, at Resnais and Second Streets, are utilized for the development, manufacture and forwarding of sound equipment to motion, as well as offering technical facilities for the production of sound pictures. The group will improve and enlarge ERP's facilities for serving studios, which portion of its business is not affected in any manner by the discontinuance of the sale and service of reproducing equipment to theatres. The new addition of the company is 2602 Resnais street, Hollywood.

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A. S. C. ON PARADE

Victor Milner, A.S.C., has been named by President Frank Capra of the Academy as a member of the general committee to have charge of the award banquet March 5.

George Robinson, A.S.C., has been signed on a new contract by Universal.

Arthur Todd, A.S.C., in the middle of the month started shooting on Warner Brothers' "Pete's Double Trouble."

Sid Hurlos, A.S.C., gave his attention to Warner's "Men Are Such Fools" during the month. It meant postponing a vacation to Mexico.

Edward G. Hackler, A.S.C., in accordance with his yearly custom, left Hollywood in two drawing rooms early December 27 for the Yosemite as host to a party of friends. The group will remain over New Year's, returning January 3. Winter sports will claim the attention of all the athletically inclined.

George S. Barnes, A.S.C., became the father of a son December 22. The new comer was an eight-pounder and was born at the Good Samaritan.

Karl Freund, A.S.C., just back from a four months' trip to Europe, was sent by MGM to photograph "Madame."

Johany Mearal, A.S.C., while photographing "Happy Landings" for Twentieth-Fox, took a break at the corner record of Rancha. He was matched against Bruce McCormick, public links United States amateur champion, in the Southern California Invitational. The A.S.C. man scored 68-75-137 against

75-68-133, and tied the course record. And that's some shooting!

Rogey C. Wagner, A.S.C., was one of the indirect sufferers from the hostilities in the Orient. He was a passenger on the big S.S. However, desisting out of her regular course in order to get away from trouble, when she groined on a reef. Sid was on his way to Barnah to photograph a picture for MGM.

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Universal Photo Almanac and Market Guide Is Out

Issued by the Falk Publishing Company, the Universal Photo Almanac and Market Guide is a credit to its makers. Its objective is the creation of a photographic annual which shall present all the new developments in photography from the angle of the technician, the craftsman and the serious amateur who is desirous of knowing what to photograph and how to photograph it.

The book contains 236 pages in paper covers. Some of the more important articles and departments are "Paper Negatives," by Dr. Max Thurek, "Make Miniature Camera Portraits," Helene Sanders; "Elementary Photomicrography," John F. Brandt, "Hints on Miniature Camera Use," Augustus Wellfong; "Color Prints from Kodachrome," Herbert C. McKay; Pictorial Section, Universal Market Guide, and Bibliography.

Honor Where . . .

In doing the honors last month to these photographically affiliated with the making of Goldwyn's "Barbarians" we omitted the names of three others who had done their bit in the "teeth of the gale." These were Archie Stout, A.S.C., and Paul Eagler, A.S.C., who did the South Sea Island scenes, and Ray Singer, responsible for the special process work at the home studio.

BERGEN PLANS TO MAKE TRAVEL FILMS

(Continued from Page 54)

of among strange and distant places on the screen. To be successful, though, travel films must be planned from a showmanship angle.

"In the future, I hope to make many of these travel films, and I hope to be able to do it in a way that audiences will like.

"At any rate, I'd try to get away from the traditional dry-as-dust photographic presentation of facts, and put on the screen something of the glamor and the romance of these far places. I hope that the results will be worthy of the A.S.C. membership I have been given."

No man is a hero to his valet, and few cinematographers meet evenly great in the eyes of their assistants. So the closing remarks must rightfully come from Assistant Cameraman Charlie McCarthy. Asked for his opinion of Ber-

gen as a cinematographer, Charlie's reply was:

"Is that man Bergen a photographer? Oh, definitely. He keeps one room of our house all cluttered up with cameras and projectors; he has his old Universal, the De Rose, an Kymco, a Halma sound projector, six or eight still cameras and miles of film that don't have a single frame of use. And the man simply collects cameras; he never sells them. Now I ask you, could anyone but a cinematographer be such a duffer as that?"

Although camera attendance in Germany set a new high record in 1937-38, the production end of the industry, measured in the 2nd Total Attendance came to 359 million, 2 percent higher than in the previous record season.



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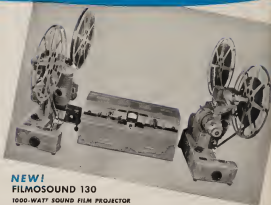
Filmo Projectors, regardless of the model, are all made with the same precision craftsmanship as the Bell & Howell professional equipment preferred in Hollywood. All have the many exclusive Bell & Howell features that enable them to give unmatched theater-quality performance.

Whether you are interested in auditorium presentations to large audiences or in private exhibition of your films for the enjoyment of your family, you want steady, sharply focused, uniformly bright, flickerless pictures. You want, too, a projector that will handle your films so gently that they will not be endangered or their life shortened.

* Such is the safe, dependable service that you may expect of any Filmo Projector.

To determine a *Filmo* Projector best meets your individual needs, send for informative literature. If you wish information about a Bell & Howell Filmo Camera, indicate your desire on the coupon below.

Filmo Cameras make fine movies—Filmo Projectors show movies at their best. Bell & Howell Company, Chicago, New York, Hollywood, London. Established 1907.



NEW! FILMSOUND 130

1000-WATT SOUND FILM PROJECTOR

Filmsound 130 now appears in the new, improved model pictured above. Completely redesigned, the amplifier provides a modern, stepping control panel from which one program is stopped and the other started by the turning of a single switch. The full 50-watt output of the amplifier is available when two speakers are used. Two speakers are desirable for sound distribution as well as volume. With one speaker, another output is necessarily limited to 10 watts. The new Filmsound 130 may be had with either one of two 1500-watt projectors, either one or two speakers. Details upon request. There are other, smaller Filmsounds, too, all entirely improved.

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5. Undistorted Pictures—showmanlike presentation, free of annoying delays.
6. Complete Film Protection—maximum life for priceless films that perhaps can never be replaced.
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8. Ease of Maintenance—so that you'll keep it performing as when new.
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Filmo 128 Projector for 16 mm. silent film, has 750-watt lamp, 1100 watt, 1600 watt film capacity, low power running current and 1000 watt projector. With class \$117. 1000-watt Filmo 130, \$412.50. Filmo with 400-foot film capacity, from \$147.



Filmo 128 Projector provides 400- or 100-watt direct illumination, first F 1.4 lens, each sandy screen permits due to camera-matched mechanism, still picture magnification, power (watt) and "Filmo Film" projection 200-foot 8 mm. film capacity. With class \$114.

BELL & HOWELL

AMATEUR MOVIES



Price 25c

Foreign 35c

January, 1938



Ciné-Kodak MODEL E

AN EASTMAN 16 MM. MOVIE CAMERA FOR ONLY \$48.50

ATHOUGH the lowest-priced 16 mm. Ciné-Kodak ever offered, Ciné-Kodak Model E boasts many advanced features. Has fast, precision-made Kodak Anastigmat *f*5.5 lens. Three speeds—Normal, Intermediate and Slow Motion—16, 32 and 64 frames per second. New-type enclosed direct-view finder has supplementary footage indicator at side of finder image—shows you the picture you're taking, how much film you're using for it, and how much film remains unexposed. Angled design makes sighting easy, even when wearing hat. Single-plane loading—simplified gets into which you just slip the film—and simple

finger room around sprocket white to make threading easy.

Plus 16 mm. Versatility

You can get brilliant screen pictures up to eight feet in width—with Ciné-Kodak E's team-mate for projection, Kolascope EE, similarly low-priced from \$59.45. And, you can use either 35- or 100-foot rolls of the five Ciné-Kodak 16 mm. films—for filming in black-and-white or full-color Kodachrome—indoors or out. Let your dealer show you this camera—and the kinds of movies you can make with it—at only \$48.50.

EASTMAN KODAK COMPANY, Rochester, N. Y.

AMATEUR MOVIE SECTION



SOCIETY OF AMATEUR CINEMATOGRAPHERS

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Karl Struss, A.S.C., Director of Photography Paramount Studios, Academy Award Winner 1928

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Don Clark, A.S.C., Director of Photography Twentieth Century-Fox

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Sherlock of Australia Winner of Cinematographer's Contest

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Lawrenson of Scotland Home Movie Winner—
Fifty-one of Sixty Entries Are 16mm—
Winners Evenly Divided on Color

JAMES A. SHERLOCK, S.A.C., Sydney, Australia, with his "To the Ships of Sydney," as the winner of the grand prize of \$200 in the American Cinematographer's 1937 International amateur competition for 8mm and 16mm films. Under the terms of the gift of \$100 in merchandise by Bell and Howell, to go to the maker of the film which in the opinion of the judges was the best in photographic technique of those films made entirely with Bell and Howell cameras, the man Down Under automatically comes in for a second award.

There were sixty entries, of which fifty-one were in 16mm, and nine in 8mm. There were fourteen prizes, of which two automatically went to the winner using specified equipment.

The second of the two-time winners was Dr. Roy E. Greenbaum, member of the Los Angeles Camera Club, whose winning entry in the educational class of "Japan and Its People" was photographed on Agfa film, the manufacturer of which had contributed two prizes restricted to Agfa uses.

Eleven of the twelve winners entered films which had been photographed as 16mm. Five and one had used 8mm. Three of the twelve live in Los Angeles.

Six of the winners, five of them using 16mm, and the sixth, John E. Walter, returning vice president of the Los Angeles Area Club, using 8mm, photographed as color. The remaining six, all of them in 16mm, used black and white.

Nine contributors, each for some unusual factor or factors in his entry, were awarded honorable mention. Five of these entries were in 16mm, and four in 8mm.

HONORABLE MENTION

16mm

"The Least Tern," E. N. Harrison, Los Angeles.

"Voyager's Trail," Duncan MacD Little, New York.

"Under Your Own Power," Sidney Meira, New York.

"If Hugs Could Talk," William W. Murphy, Bloomfield, N. J.

"Civic Activities," Mabel M. Becker, Cleveland.

8mm

"The Engineer's Daughter," Earl Cochran, Colorado Springs, Colo.

"San Francisco-Oakland Bay Bridge," Raymond O'Connell, Oakland.

"Discovery," William R. Paulson, Los Angeles.

"Kleptomania," Ben B. Vogel, Los Angeles.

Much time and thought were expended by the committee on awards in the examining and eliminating and selecting of the subjects submitted for the annual amateur contest, the first of which was held in 1932. The final committee was composed of members of the American Society of Cinematographers.

Good Does His Bit

One of these members, Frank E. Good, secretary of the society, earned the commendation and the gratitude of his fellows on the committee as well as of the society by his faithful attendance at all of the meetings of the jury, which meet an average of six afternoons a week for two and a half weeks, as well as a number of evenings.

He brought to the task not only a wide experience in photographing motion pictures in many parts of the world but a judgment sharpened—and also softened—by several months this fall in Alaska at the head of the camera unit photographing the locale sequences of Paramount's "Spies of the North," a subject marked for production this spring. He knows the photographic hazards and handings.

He was peculiarly equipped to understand the difficulties encountered by some of the contestants who had undertaken work that would require for successful completion the background of a wide training in camera work. He was quick to recognize good photography, especially of the contestant scored both in interiors and exteriors. Also he stood alternate watch with Bill Stull, A.S.C., at the 8mm, and 16mm, projects.

Few Dead Open and Shut

Unfortunately for the committee, but

speaking well for the general average of the entries, the "dead open and shut" decisions were few and far between. It hardly an instance did any one suggest the topic in the class under discussion but a fellow-member in turn called attention to another entrant who had done work worthy of commendation. All through it seemed to be a case of dig deep for the best.

Many of the pictures were shown two and three times and quite a number of them four times. Although the preliminary committee had its own opinions on the general order of merit in the winners the entrance of the final committee spent one or two applicants when the members brought to bear on the problems of the committee an entirely fresh viewpoint, undiscovered by having lived with the prominent competitors' product for more than a couple of weeks.

The members of the final committee truly may be described as an international jury. No matter what part of the world was being pictured on the screen it seemed at least one of them had been in the neighborhood and was familiar with the locale.

John W. Reyle, past president of the A.S.C., has just returned to Hollywood after several years in England and on the Continent. Like nearly all the other members of the final committee he is a shark as color and has used it in some of the spots that were reproduced on the screen by winners. Particularly was this true of Northern Europe.

Broad Viewed Travelers

Richard Fryer is a native of England, and like the man who is born under the Union Jack seen the world through broad glasses. Al Gilks a few years ago was selected by the master of the yacht Alva, William K. Vanderbilt, as head of the camera unit to accompany him on his yacht and to record on film the principal events scientific and otherwise encountered in the circling of the globe. During the past year the same cameraman went to England to photograph Edward G. Robinson in "Thriller in the City," a subject which was released in the Martin by Columbia.

Robert G. Martin for years photographed motion pictures for English

producers, and in the course of that employment traveled the Continental and Northern African routes. Harry Perry only this last year toured Europe for Paramount, visiting all the principal countries.

So it will be understood when a picture was thrown on the screen it was being judged for the screened result regardless of its make or the source from which it came. The committee was unconcerned with which had won what in preceding contests, how many times a contestant had won before, or how soon what nation might be on the sets with which.

It was the viewpoint of the sponsors judging the product of contestants in efforts to bring forth an artistic piece of work.

Quick Answer

One young woman contender who has been making motion pictures for but a year and was entering her first contest suggested in her entry blank she would like to see an article by the winner of the contest as to the methods employed to secure his results. Her prayer was answered almost in advance of its utterance.

In the December issue on Page 115 is an article by James A. Sherlock, S.A.G., under the caption of "Selecting Waterfront as Sherlock Does It." It was sent through for printing before the editor had seen the picture that had been submitted by the writer of the story.

Amateurs will find an interesting and also most helpful tale of how best to get desired results around and about a waterfront.

"Mount Zao," prizewinner for photography, was entered in black and white by Kyoji Tachikawa of Tokyo. The latter is one of the three members of the directorate of the Sakura Kagaku Eiga Kyokai of Tokyo, or is English the Cherry Amateur Movie Society. In another column will be found the report of the annual competition of this organization, the honorary president of which is Marjorie Tawakasha.

"Mount Zao" is an outdoor subject, taken on the crags of the snow-jacketed mountain of that name. The paper shows were of small groups on skis swirling and dashing in single file as a rule in clouds of snow along ridges backlighted by Old Sol. It is effectively done, and on its first showing was marked for consideration as the winner of the photographic division.

Lawrencean Reports

The prizewinner for color, "This Side of Paradise," was in Kodachrome, and entered by A. Scott Moorhouse of Toronto, a member of the Toronto Amateur Movie Club. The locale of the subject was the Italian and Swiss mountains and lakes. The decision on color or rather the reaching of it constituted one of the committee's chief headaches. There were some remarkable examples submitted. Mr. Moorhouse has a right to feel proud of his product.

"Another Happy Day" was the winner in the home movie classification, the

prize going to T. Lawrencean of Dundee, Scotland. Mr. Lawrencean is a member of the Institute of Amateur Cinematographers of London. Also is he a winner of the American Cinematographer's contests, having been one of the three major prize winners of 1935. Also is the chief actor in the home movie a veteran, a child who now has reached seemingly the mature age of four years, and who of course was but two when he made his debut on the home movie stage in "Happy Day." He is a black-eyed, camera-unconscious and personable youngster, who proccures on his lawful occasions in complete indifference to a live lens.

"Japan and Its People," Dr. Roy Gerstleken's educational class winner, was a petted visit to the homes and temples of Japan. Ignoring the cities in his search for the story of the Japan that is not known to the average visitor the doctor penetrated the towns and smaller communities. His picture was awarded a high rating on its photography as well

as on its subject matter. The picture was a petted visit to the homes and temples of Japan. Ignoring the cities in his search for the story of the Japan that is not known to the average visitor the doctor penetrated the towns and smaller communities. His picture was awarded a high rating on its photography as well

THE WINNERS

\$250—To the Kings of Sydney." Grand Prize

Entered by James A. Sherlock, Sydney, Australia. 16mm. color. Used Bell & Howell Fico camera, Kodak film, Weston Meter

\$50—Photograph, "Mount Zao"

Entered by Kyoji Tachikawa, Tokyo, Japan. 16mm. black and white. Used Bell & Howell Series 70 camera, Eastman film

\$50—Color, "This Side of Paradise"

Entered by A. Scott Moorhouse, Toronto, Canada. 16mm. color. One Kodak Special Camera, Kodachrome.

\$50—Home Movie, "Another Happy Day"

Entered by T. Lawrencean, Dundee, Scotland. 16mm. black and white. Erigon Kinacorn Camera, Agfa Japan supermotive.

\$50—Educational, "Japan and Its People"

Entered by Dr. Roy E. Gerstleken, Los Angeles. 16mm. black and white, Eastman camera, Agfa Pan and Superpan

\$50—Scenaria, "Prize Winner"

Entered by J. Kinney Moore, Los Angeles. 16mm. black and white, One Kodak Special camera, Eastman S.S. Pan

\$50—Scenaria, "Europe Touring"

Entered by Ellis H. Yarnall and C. Y. Kinkell, Berkeley Beach, Calif. 16mm. color, One Kodak Special and One Kodak K cameras, Kodachrome.

EQUIPMENT

Victor Amateurs Corporation projects for the most interesting lighting effect, "Little Sherlock"

Entered by Charles J. Carbonaro, New York. 16mm. black and white, One Kodak Special camera, Eastman S.S. Panchromatic.

Agfa Anso Corporation, six 100-foot rolls of Agfa 16mm. Super reversible film, "Saler Palena"

Entered by Mel Wesseler and Harry French, San Francisco 16mm. black and white, Stewart Warner E.S. Hollywood model camera, Agfa panchrome and superpan.

Agfa Anso Corporation six 100-foot rolls of Agfa 16mm. Fine-Grain Panchrome reversible film, "Japan and Its People"

Entered by Dr. Roy E. Gerstleken, Los Angeles. 16mm. black and white, Eastman camera, Agfa Pan and Superpan

Bell & Howell, "To the Ships of Sydney"

Entered by James A. Sherlock, Sydney, Australia. 16mm. color, Fico 70 DA camera, Kodak film, Weston Meter

Mitchell Camera Corporation, special award for Photographic Composition, "El Camero Real"

Entered by John E. Walter, Los Angeles, Cal. 16mm. color, Eastman Sum. No. 20 f-3.5 camera, Eastman Kodachrome.

Harrison & Harrison, "Garden Life"

Entered by Eugene L. Blizman, Berkeley, Cal. 16mm. color, Model A and Model K Eastman camera. Eastman Daylight Kodachrome and Type A Kodachrome.

Weston Electrical Instrument Corporation, "Basic Wonders of the South-West"

Entered by R. C. Deary, Fresno, Cal. 16mm. color, Stewart Warner Deluxe camera, Kodachrome



J. Kenfield Morley, appointed by the directors of the Adirapograph Corporation as vice president and general manager for a restricted five-year period. The company is a Chicago concern, with offices in Rochester and Louisville. It produces motion picture advertising and manufactures Flo-Lite cellulose acetate products.

Inquiring Reader Sends Thanks for Technical Aid

NOT all of the technical inquiries received by *The American Cinematographer* are answered in these columns. Many require special personal replies too long, or too intimately related to the individual's specific problems to permit their being printed here.

Other questions may be referred directly to honorary and associate members of the A.S.C., maybe leaders in some special phase or phases of cinema technology.

Recently one of our readers reported difficulties in splicing leader strips to films, negative film. The question was referred to Dr. V. B. Sease, A.S.C., head of the DuPont Film Company's research laboratories. Dr. Sease took time from his duties as head of one of the world's greatest research plants to help our reader with his splicing problem. The other day we received this letter from the reader in question:

"Thanks to your efforts to answer my query regarding difficulty in splicing 16mm negative film, I have received a 2 oz. bottle of film cement from Dr. V. B. Sease, A.S.C., of DuPont Film.

"This cement has solved all my difficulties in this matter. Several of my filmmaking friends who also have had the same trouble have been helped by this cement.

"I wish to take this opportunity to thank you very much for all the trouble you have gone to, and through you to Dr. Sease and to wish you personally and the A.S.C. continued success."

B. & H. HAS NOVEL 8mm FILM VIEWER

CENTRALLY located on a streamlined metal base is a splicer similar to the Bell and Howell "135," a rapid-fire splicing unit which requires film placement on the pilot pins only once, and which shears the film ends and brings the bonding surfaces together in one operation. The dry scraper and film cement bottle are conveniently recessed in the base on the right side of the splicer.

At each end of the base is a streamlined reminder which takes all forms, including camera spools, return spools, and 200-foot projection reels. These reminders are geared 2½ to 1, which means that a single turn of the crank rotates a reel two and a half times.

The *news* owner may start his experiment with this reminder and splicer and later complete the outfit by adding to it himself the 8mm film viewer.

8mm Editor

The complete editor consists of the reminder and splicer just described, plus a special 8mm film viewer exceedingly clever in its design.

The viewer is so simple and compact that one wonders why as one thought of it before. Actually, it took Bell & Howell more than two years to design the editor, for simple things are the hardest to do well.

The viewer might be described as an inverted, modified cone, hinged at the

small end and terminating at the large end in a ground glass viewing screen 1½ inches wide upon which a brilliant upright image of a single frame is produced. This viewing screen is well shielded by a "sunshade," permitting a desk lamp or room lights to be used without interference.

The view cone swings backward from its base, out of the way entirely when the film is wound from one reel to another, and permitting easy placement of the film in its channel when the viewer is to be used.

The lamp is entirely enclosed, except for the small opening through which its rays pass to the optical unit in the viewing cone, and there isn't a chance for glare in the eyes of the operator. With a convenient switch on the cord, the lamp may be turned off while the operator is splicing.

All surfaces with which the film comes in contact are recessed to eliminate any possibility of abrasion, and the entire editor is designed to offer the utmost in film protection, efficient, lasting splices, and ease of operation.

The film viewer can be purchased separately, for use with the reminder and splicer, and it is also available with a viewer elevating bracket and a reminder elevating block for use on previously purchased Model 135 and wood-base splicer and reminder combinations.



The new Bell and Howell film editor

Amateur Cinematographers Seek to Make Better Motion Pictures

That's the Answer to Question as to What They
Are Striving for—Screen's Dominant Place
in World Has Awakened Universal
Consciousness of Film Quality

WHAT are amateur cinematographers striving for? The obvious answer is "to make better and more interesting motion pictures."

The dominant place of motion pictures in the entertainment, advertising, and, in fact, almost every field of human activity, has awakened a universal consciousness of photographic quality even in the most meek.

The butcher and the baker today know a good picture from a bad. They place the amateur on the spot. Even in his darkened living room, while his neighbors view his film of a vacation in Yosemite, he is acutely aware that his pictures are being judged by the standards of the professional theater.

And yet the real amateur is his own worst critic. He denies himself the perfection of his hobby from the sheer love of making good pictures. With such motives free from commercial motives and constraints, it is only natural that in originality and artistic quality amateurs frequently produce pictures ranking with the best.

Sheds Into Hobby

Let us examine what we amateurs are trying to do and how we are trying to do it. The average movie addict becomes so innocently and by accident. On a banana peel of overwhelming desire to perpetuate and share with others scenes and events which moved him deeply he sheds into his hobby.

Or it may have been the new baby whose mother shows each proud parent feels impelled to preserve for posterity. A litter of pups, or a trip around the world have been the starting cause.

The hobby grows, like proverbial vice, takes in most unsuspecting forms. Some are lured to a camera by an irresistible desire to make beautiful pictures without the usual practical motives. These are the real artists who in the musician, the poet, and the painter.

I said we are launched into this fascinating hobby "innocently." By that I mean frequently the amateur is unaware of the difficulties that beset the path he has chosen. He harbors the sweet delusion that fine pictures can be miraculously in his shiny new camera.

All that seems necessary for success is to point the lens at what he sees and let it run. Disillusionment is usually quick and painful, though often the

By A. L. GRAM
President
Los Angeles Cinema Club

beginning spirit that leads us on has a sweet smile for our first endeavors.

With the awakening of consciousness as to his limitations, the amateur then naturally turns to the extensive literature of motion picture photography. In the excellent monthly magazines published for his especial benefit he seeks the answers to the mysteries of the art.

What Is Amateur's Aim?

Those determined souls who survive the early failures and have the fortitude to continue end up in the amateur cinema club. There they seek to profit by the experience of kindred hobbyists, mutually seeking advice and aid in penetrating the mysteries of the motion picture art and science.

What is the amateur's first desire? It is to make a good picture under any reasonable conditions he may encounter—on bright days and dull days, in light

and in shadow, by the sea, and in the mountains, indoors and out.

This means primarily the discovering of that particular lens aperture which will produce the best possible results under a given set of conditions. The amateur generally wants a picture that is bright with nicely graded contrasts of light and shadow, with ample detail and with that elusive recording of near and distant objects so essential to the illusion of space. That, in general, is our primary desire.

Not always, however, does the amateur seek for the greatest brightness and clarity. Often he is more concerned with producing a particular effect or impression which he believes can best be accomplished by the elimination of detail. Stages against the sky, or a sunset through the clouds are favorite illustrations. Producing the illusion of sunlight on the beach is another.

But whether we are striving for brightness and clarity of detail or the rendering of a pictorial mood, our problem lies in the proper manipulation of the camera and its accessories.

New Fields in Color

With the recent advances in the use of color, the amateur's interests have been extended to new fields. Color, in some respects, has simplified his technical problems, and in others added new complexities. With black and white film, good results frequently depend upon the skillful adaptation and use of the many films.

Balancing of color intensities is naturally much simplified by a film which records the actual colors rather than their light reflecting capacities. The problem of interpreting colors and shades into tones of black and white has always haunted the conscientious amateur.

It is only with experience many discover that the picture which seemed at first to be a clear and faithful reproduction in light and shadow of a colorful scene of meadow and stream had completely distorted the relative light values of nature.

With these considerations in mind, most amateurs will agree that our first problem is the mastery of our equipment. A camera is a wild, untamed beast until tamed to do its master's will. As Count von Schandorff advised the members of the Los Angeles Cinema Club, we must become so expert in the



A. L. Gram, vice president of the Los Angeles Cinema Club

manipulation of our cameras that adjustments are made automatically and automatically, leaving the eyes and mind free to deal with the subject. So much for photographic mechanics.

Appeal to Artistic Sense

This leads us to the next factor of concern to the amateur. He wants not only to produce a clear and true picture of a mountain stream, a rock in the surf, or a smiling baby, but also one that gives pleasure in the artistic sense with which we regard the landscape painting or a fine etching.

By trial and study he searches for the underlying principles upon which these qualities depend. Among the things he discovers are that the central theme of his picture must stand out, yet remain unobtrusive; the objects within the scene must be grouped into configurations and outlines reducible to simple geometric forms; that the masses of color or light and shade must be so disposed as to give the picture an accurate sense of balance; that the camera's plane of the picture must be harmoniously related to one another and to the picture as a whole.

The artistic quality of a picture is highly intangible and depends greatly upon the intuition of the photographer and, of course, on his training. The cinema club affords opportunities for comparison and discussion of each member's results with his associates and can contribute very much to improving the composition of the amateur.

The third element which the experienced amateur and thoroughly instructed hobbyist seeks to achieve is *interest*. This is also an artistic element and involves the field of the writer and story teller. It is probably the predominant factor in professional films, but generally of subordinate interest to the amateur.

Would Hold Interest

Nevertheless, the amateur, regardless of his subject matter, whether it be a trip to England or a baby on a hot day with a garden hose, seeks to apply those psychologic principles which will arouse and hold the interest of his audience.

In doing this he is concerned with which scenes are to be selected and what is to be cut out, with the length of the scenes, and with the order in which they succeed one another. By ingenuity and skill, he endeavors to introduce his audience to the time, place, location, and circumstance of the picture and carry it along to a natural climax and conclusion without ignoring or overtaxing the imagination.

The foregoing, I think, is a fair review of what the amateur is striving for. Now he seeks to attain these various objectives varied greatly with the individual. Here is the crux of the problem of organizing programs for amateur cinema clubs.

Each of us draws from a different fund of knowledge, experience, and temperament. Some feel that they learn more and profit most by hearing discussions and expositions of the underlying

scientific and artistic principles of picture-making. They feel that talks on lenses, emulsions, cameras, on tripods and light meters and on the principles of artistic and literary composition and psychology give them the best results as reflected in their own pictures.

Others are sure that they profit most by the experimental approach. They like to see films taken under experimental conditions where some factors are held constant and others are varied.

Keen for Experiment

A common illustration is the frequently expressed desire to see a picture, say, of a snow-capped mountain with a tree-bordered stream winding into the foreground taken from a constant position with the exposure varied through successive stops; or, under the same circumstances, to see the effects of introducing a succession of filters.

Then again many feel that their picture-taking is most benefited by seeing a variety of professional and amateur photography and hearing competent

analysis and criticism. They want to be told what to do and what not to do.

These approaches to the problem of learning photography are not mutually exclusive. Some cinema club members prefer one or more and are inclined to be bored by the others. Consequently, as I see it, the logical way to satisfy all the diversified requirements of a club membership is to present a variety of programs throughout the club year.

A series of programs designed exclusively on one principle will not be satisfactory to all and will meet with objection from those who feel that their photography is not being improved or their experience enlarged. Those who desire to see pictures criticized will frequently avoid technical meetings, and so on.

If amateur cinema clubs would recognize these principles in arranging their programs, it is believed that more satisfied and enthusiastic memberships would result, and the consequences would be reflected in the quality of their pictures.

B. & H. Producing Four Film-on-Sound Projectors

WITH the announcement of great improvements throughout the entire line of Film-sounds, Bell & Howell is now producing four standard models of these 16mm. sound-on-film projectors, one Model 120, two Model 130s and one Model 130-A. All embody new features.

The new 750-watt Film-sound 120-D for the busy traveling sales representative has an electric rewind, and for the teacher who wishes to emphasize and review there is a still picture clutch and a reverse gear. The clutch and reverse are invaluable, too, to those who wish to edit their sound film with the helpful aid of the Film-sound.

Two speeds, sound and silent, appeal

to the market for a universal machine, and the improved amplifier provides 18 watts of undistorted output with even greater fidelity than before. The take-up mechanism is cleverly designed to require no changing of belts in run tests of various sizes. This new model is also available with a special amplifier to operate a 25 to 50 cycle alternating current.

The newest of the improved Film-sounds is the 130-D, the powerful 1600-watt Audio-visual model. A completely redesigned amplifier is the outstanding new feature of the 130—an amplifier smoothly styled in the modern mode with the popular sloping control panel, and capable of an unusually high output.



The new Bell & Howell Film-sound 120-D, a two-cost model which provides a sound-proof enclosure for the projector, handles both sound and silent film, and offers clutch and reverse.

There are Thrills Aplenty for He Who Dramatizes the Iron Horse

By WILLIAM STULL, A.S.C.

EVERYONE has thrilled to the sight of a crack express train thundering past, smoke-plumed and moving with the rhythm of dynamic grace. Those of us who have lived in small towns recall the daily rite when everyone who possibly could trooped to the station to watch "Number 5" go by.

All of us remember childhood anticipation—frustrated, perhaps, but still secretly cherished—to sit at the theatre, controlling the heated power of some thundering giant of the rails.

But—did you ever think of the railroad as a source of picture material?

I know there are literally tens of thousands addicted to the hobby of railroad photography, in the still photographer's sense; but I am speaking of one-picture material. The business of railroad movie-making offers the cinema scope for exercising practically every facet of his cinematic bent.

Pictorial landscape filming? Of course! Color? Certainly! Documentary presentation? There's no wider realm of little-known facts that reveal the cinema scope for exercising practically every facet of his cinematic bent. Pictorial landscape filming? Of course! Color? Certainly! Documentary presentation? There's no wider realm of little-known facts that reveal the cinema scope for exercising practically every facet of his cinematic bent.

In truth, railroad filming offers the discerning viewer what might be termed as entertainment of riches.

In this, I speak from experience.

Egged on by such fellow-members of the A.S.C. as Ned Van Buren and Ray Fromstrom, I yielded some time ago to the photographic enticements of railroad filming, and as this is written, I am devoting my spare time to completing a railroad film in Technicolor for my friend Eric Starke, of England.

In the hope of helping others similarly interested, and in a hope of suggesting a new cinematic field to yet other cinema men, here are some of the things I've learned while making my films of the Iron Horse.

Must Have Story

First of all, your film must have a definite story to tell. Of course, if you are a dyed-in-the-wool rail fan, you'll get a measurable thrill from watching Henry K-in or Express Mailers moving across your home screen; but your friends will like the picture a lot better if it has something definite to say.

For my own film, I chose the evolution of California's railroads from the early-day experiments up to today's glittering streamliners. There are countless other stories that can be put interestingly on film in every locality I look around and take my pick!

Once you've chosen your story, probably the next question is the eternal one of black-and-white vs. color. I chose color. For most rail pictures, it is best,

though there are some things, such as close shots of engine roundhouses and engine shops, which demand the added speed of black-and-white.

You might not think color would enhance scenes of our sooty black locomotives and dark "redline passenger" cars; but the fact remains that it does. In fact, some of my color scenes showing daily transcontinental trains coming in from the desert present a much more attractive picture than monochrome could possibly hope to do.

And of course our modern streamliners and specially decorated steam trains supply scenes for Kodachrome.

Railroads Cooperative

The next question is how to get your scenes. In some parts of this country, as is the case in Europe, you may possibly find it necessary to arm yourself with a photographic permit from the company. In my own case I did not find it so, and I believe that is most cases, as long as a filmer behaves himself and does not attempt foolish or risky things, he will find the rail personnel most cooperative.

The American railroads are beginning to appreciate the rail film and its cultivator has good-will. The almost invariable reaction as I stepped out my films for a shot was that everyone, from engineers to switch tenders, tried to help me make my shot perfect; most of them asked me advice about getting still or movie outfits for themselves or their families, and many volunteered suggestions of action or locations that would make good scenes.

Whether you are shooting color or monochrome, a fairly flat lighting, with a good strong sun, is the best. If the sun can be relatively low in the sky, so much the better; the drivers and rods of locomotives are very important to our picture, and the leaders on modern "hosts" have grown so big that when the sun is high, they are likely to throw the running gear into unpleasantly heavy shadow.

The best antidote naturally is a low sun that throws direct light underneath the big boilers.

Showery Days Not Toots

In black-and-white, cloudy days are often excellent for close shots of engines, but personally I do not care to make color scenes on such days, for the film often gives a slight reddish hue to the actually black engines and makes them look brownish and rusty.

On the other hand, some of my best



Here is the latest in streamlined locomotives, shown in action at the head of the Daylight Limited, running between Los Angeles and San Francisco. As the color scheme of the entire train is an orange and red it is "sassy stuff" for the Kodachrome when he (she) is shooting past. Photographed by Ned Van Buren, A.S.C.

color-shots have been made on showery days, with broken clouds. But clear, simply blue-white-lit mornings are best for Kodachrome locomotives.

The railroad cinematographer cannot, of course, dictate what his lightness are to be, for trainables are seldom planned for photographers. If a train is at a certain point of its run at a certain time, that's that; and if the lightning is bad for photography, it's just too bad. But you can get around this by choosing your locations for lighting as well as action. Sometimes, too, the same train—eastbound instead of westbound—moving on the opposite run, or even a similar but earlier or later train can double very successfully in such shots.

Railroad photography is necessarily a time-consuming pursuit. Often one will pry himself out of bed at an unwholesome hour, drive a score of miles, set up—and return with but a single shot. If another angle on the same action is wanted, he must wait until another day and repeat the performance, in some instances, as with the transcontinental streamlines, as much as a full week!

Perhaps the most important—and the most frequently overlooked—feature of rail filming technique is the matter of keeping the direction of a train's movement across the screen consistent from one scene to the next.

Suppose you begin a sequence by showing a train pulling out of a station. In this, let's say it moves across the screen from left to right, leaving the scene on the right hand side of the screen. Well, in the next scene, it should enter the picture from left. Once in the picture, it may, if you wish, turn, leaving the scene toward the left, but on reentering scene, it should then be shown entering from the right and leaving to the left until it is again shown turning.

Don't Mix Directions

In the same way, if you begin a sequence showing a train coming toward the camera, succeeding scenes should show the train coming toward the camera until one shows it approaching, turning and receding (you can get such shots on curves) after which the train should always be shown proceeding in its new direction.

In general, the less you mix up the direction of movement the more consistently interesting—and understandable—will your film prove to non-rail audiences.

The matter of camera angles is of locomotive importance. Low camera angles will give an impression of increased size; high ones will diminish the apparent massiveness of the train.

Extreme low shots will make even the speediest streamliner appear to be moving more slowly; closer angles will make the train seem moving faster and faster the closer you get to it. In the same way, long scenes will tend to slow the motion, while short flashes speed it up.

Here, by the way, let us be caution against filming the train crossing the picture close to the camera and moving

directly across the frame. At normal camera speeds such shots are likely to be unpleasantly blurred and often jerky; a three-quarter angle—preferably with the train approaching—is much more effective.

Probably the ideal angle is that shown in the illustration, a picture of the Southern Pacific's streamlined "Daylight Limited." Here the train is shown crossing a curve and approaching the camera. In addition, it is just at the start of a gradient. (Scotts Barren Pass), and as the engine goes its throttle in, it makes a run for the hill and the fireman throws extra fuel on the fire the engine streams forth a highly pictorial cloud of smoke.

Speed Variety Helps

The opposite extreme—the virtually motionless steering a good fireman can achieve on a level tangent, and the over-steady exhausts from stock and cylinder cover engines today in when starting—are not as desirable by pictures.

A variety of camera speeds is helpful in railroad filming, though they are not by any means essential. Our modern day fast trains—especially the speed streamliners—start very slowly and smoothly, hardly seeming to move.

A camera speed of 8 frames a second is very helpful here. On the other hand, if you make shots from the train itself, speeds of 24 or 32 frames a second will be a big help in smoothing out the vibration.

Within the past few years a development of real importance to anyone interested in railroad movie making has taken place. This is the rise of national campaigns sponsored by the various corporations of railroad and railroad picture enthusiasts.

Sponsored by such groups as the Rail way and Locomotive Historical Society the Railroad Enthusiasts, the Railroad Boosters, and various other national and local organizations of railroad and model-railroad fans, these trips afford special opportunities for filming railroad scenes on little used branch lines, heavily traveled main lines, roundhouses, locomotive and car shops, and the like, which might otherwise be difficult to obtain.

Excursion Trips

These trips are constantly taking place in every section of the country. The cost is rarely high; a recent one which netted me some invaluable shots of one of California's few surviving narrow gauge railroads and equally useful ones made from the de luxe Daylight Limited cost less than the price of a single roll of 16mm. color film!

However, if you go on one of these trips, don't imagine you'll be the only member of the one fraternity present. The railroad camera enthusiasts are taking to movies, both 16mm. and 8mm., in increasing numbers, the man who carries but a single camera on such an excursion will find himself dutifully in the minority. Many come equipped for both stills and movies, while some even

pack three cameras, complete with tripods, meters and other accessories.

But at any rate, if you are looking for a subject different from the ordinary run of scenes, travel scenes and shots of families and friends, try dramatizing the Iron Horse.

She has started in many a great novel film from the days of "The Great Train Robbery" down to today's "Wells Fargo"—and still she offers pictures which can interest any audience.

Agfa Prints Two Booklets on Photographic Subjects

Among recent publications by Agfa Ansoo Corporation of Binghamton, N. Y., are two which will be of interest to many amateur photographers. One is a booklet of over forty formulas for photographic use—including developers, fixers, intensifiers, reducers, desensitizers, and toners. Also included as part of this free booklet is a practical discussion of the principles of chemistry that are important to the photographer.

The other publication is a 32-page catalog of Agfa materials for amateur use, listing and describing the cameras, accessories, film, papers, and chemicals manufactured by Agfa Ansoo. Both the formula book and Catalog 56A are available without charge of photographic dealers or may be obtained by writing Agfa Ansoo Corporation, Binghamton, New York.

Kodak Issues Home Outfit

To facilitate the photographic education of amateurs who move their first camera into Christmas, the Eastman Kodak Company has assembled a home developing and printing kit, the Kodak ABC darkroom outfit, which includes all the basic material and equipment for beginning a home darkroom. The kit serves for negatives up to and including 3½ by 5½ inches.

Attractively packaged, the new outfit includes a Brownie darkroom lamp, Model A; a four-stop graduated; three 4 by 6 inch developing trays; one half-pint package of Kodak acid fixing powder; three tubes of Eastman Universal developer; two dozen sheets of Velox velox paper, Contrast No. 2, size 3½ by 5½; two Kodak junior film clips; a glass stirring rod; Eastman printing frame and glass, and an instruction booklet giving complete information for developing and printing negatives.

The ABC outfit is designed to help the "novice" surmount several difficulties and errors in his purchases at the start of his darkroom experience.

Agfa Plays Santa Claus

A Christmas bonus, totaling approximately \$100,000, has been declared by Agfa Ansoo Corporation, and was distributed among Agfa employees about December 15. The Christmas bonus, announced by Dr. Ernst Schwarz, Agfa president, was credited to the general gain in business during 1927.

Notes of the Movie Clubs

Walter, Horton, Mrs. Armstrong Win Top Honors in 8mm. Group

THE annual banquet and contest of the 8mm. Club was held at the Victor Hugo Cafe, Beverly Hills, December 11. The attendance exceeded 150 and, in keeping with the history of this club, was the most successful annual gathering thus far.

At the conclusion of an excellent dinner Dr. F. R. Leachner, the retiring president, introduced the incoming officers: C. G. Cornell, president; J. H. Taylor, vice president; B. B. Vogel, secretary, and William Wade, treasurer. The retiring officers, M. R. Armstrong, secretary-treasurer; John E. Walter, vice president, and Dr. Leachner then sang their three-part swan song.

A drawing was then held and door prizes consisting of one roll of panchromatic film each was won by E. J. Brouillette, Jr., Clifford R. Carpenter and Mrs. Philip Richards. We shall all be looking forward to seeing what they have done with these rolls at the February meeting, as a suitable reward has been arranged for the best one submitted.

Dr. Leachner called on William Stull, ASC, to give the results of the judges' decisions. The judges were all members

of the American Society of Cinematographers, the two others being Charles G. Clarke and Ned Van Buren. Their findings were as follows:

John Walter was the well deserving winner of the first prize, consisting of a \$25 merchandise order given by Eastman Kodak Stores and a two-year subscription to the American Cinematographer. His picture was a two-reel travelogue in kodachrome entitled "A Midsummer Night's Dream."

"Avery From All Cares," a kodachrome vacation picture which by the rules governing it was not eligible for the Horton Vacation Trophy, was second prize for William Horton. This prize was a

earned for him a \$15 merchandise order at Bell & Howell's.

"Escape," a vacation film, was 10th prize for Ed Pyle, a \$10 merchandise order at Bell & Howell's.

"The Pest," by Euel Janda, was sixth, a \$5 merchandise order at Bell & Howell's.

"Kleptomaniac," by Rino Vogel, was the seventh award, a \$3.50 merchandise order by A. L. Kirkhoff of Glendale.

The special class award for the Horton Vacation Trophy was then made to John Walter for his "Midsummer Night's Dream."

Dr. Leachner asked for an audible vote as to how many of the prize pictures should be run and it was unanimous that all seven winning pictures should be shown. To a person the 160 present remained until well after midnight and no one regreted it.

BION B. VOGEL, Secretary.

Cinema Club of San Francisco

THE Cinema Club of San Francisco at its meeting December 14 elected C. G. Fetherick as president, C. D. Hudson vice president, Vernon Hallet secretary, H. T. Kelly treasurer, and W. Coburn, Maxwell MacVean and H. L. Miller directors.

George L. Waters filmed two Kodachrome subjects, "Westward Ho" and "The Grand Tetons of Wyoming."

E. G. FETHERICK, President.



Dr. J. H. Taylor, Vice President Los Angeles 8mm Club



C. G. Cornell, president Los Angeles 8mm Club

\$33.50 headed screen donated by the J. W. Robinson Company and a one-year subscription to Home Movie.

Mrs. Charlotte Armstrong's picture "Thru the Filter" won for her third prize consisting of a Western exposure meter, a \$25.50 value given by Peterson's Camera Exchange.

"My Alaska Cruise," a two reel travelogue in kodachrome, was awarded fourth prize. This picture by C. G. Cornell



Bion B. Vogel, secretary Los Angeles 8mm Club

Gerstenkorn and Chapman Lead Winners of Los Angeles Cinema

THE members of the Los Angeles Cinema Club met in the banquet room of the University Club at 6:30 on December 7. The secretary-treasurer, James H. Mitchell, in his annual report stated there were seventy-eight members of the club in good standing.

The Board of Directors had authorized an appropriation of \$60.35 with which to purchase a host speaker and turn table for the club. This purchase had been made through the South-Noble Corporation.

The nominating committee named these officers for the coming year: A. L. Green for president, James H. Mitchell for vice-president and R. B. Smith for secretary-treasurer. These were elected by acclamation.

At the request of Dr. Bailey, retiring president, President Green announced his plans and policies for the coming year, which were enthusiastically received by members present.

The program then was turned over to Fred Chapman, chairman of the Contest Committee, who stated the pictures that had been entered in the annual contest had been judged by a special contest committee from the Paramount Amateur Movie Club, and in accordance with the rating given each picture by the committee of judges the following pictures were awarded prizes: Best Photomontage, 466 feet, "Japan and Its People," Dr. Roy K. Gerstenkorn—\$25 merchandise order donated by Eastman Kodak Stores, Inc.

Best color film, 466 feet, "Bryce Canyon," E. F. G. Chapman—\$25 merchandise order donated by Bell & Howell.

Story Class—First, "Egypt and the Land of the Nile," Dr. A. Froehner—

Three 100-foot rolls Agfa film donated by Agfa and one year's subscription to American Cinematographer.

Second, "My First Hair Cut," Ed Pyle—\$10 merchandise order donated by Winters, Inc.

Third, "In His Father's Footsteps," James H. Mitchell—Two 100-foot rolls Super Pellex film donated by Pellex Film Co.

Documentary Class—First, "Tropical Interlude," Earl Memory—\$20.35 for 48 screen donated by Victor Amnograph Corporation and one year's subscription to American Cinematographer.

Second, "Six Weeks with a Hamamberg," Ralph C. Herr—\$1000 and title donated by Hollywood Cine Film Distributors.

Third, "Five Mountains of Yesterday," Ralph D. Taylor—Two 100-foot rolls Orto film donated by Pellex Film Co.

Honorable Mention—"Safari Land," by Dr. Gerstenkorn; "Kubadscope" and "Guatemala," by Levy.

William Carmel, president of Para-

for a better climax, some of the breath-taking shots in the middle of the picture. Congratulations to you, Mr. Chapman, on a mighty fine picture."

"Japan and Its People," by Dr. Gerstenkorn—"Dr. Gerstenkorn is to be congratulated on the fine job he has done in capturing the spirit of the people. The picture is full of human interest and well edited. The photography is excellent and worthy of its award as the best picture from the standpoint of photography. The only criticism against the picture is that it begins and ends too abruptly."

Lawrenson's 'Happy Day' Takes Honors in Japan By FRED C. KILS

TOKYO, Dec. 1—"Happy Day" T. Lawrenson's home life 16mm. movie, made in Dundee, Scotland, was first place in the Emperor's President's Cup in the First International Amateur Film Competition held in Tokyo by the Sakura Kogata Kyo Kaikan. Second place went to Mr. Ogino, Tokyo, for his industrial film, "Agar agar." Third place was awarded "Bommerli," produced by E. Grunewald of Berlin.

Other films placing in the ten best were "Chrysanthemum Culture" by R. Imada, Osaka; "Insect Life," K. Kakiyama, Nara; "V-Ray Tube," J. Martin, London; "Kutsum Fowls" K. Kimura, and R. Ichin, Kanagawa; "Mount Fuji in Winter," T. Nagakura, Tokyo; "Netting Wild Ducks," I. Shima, Tokyo; "Surf, Sand and Sunshine," J. A. Sherlock, Sydney, Australia.

Among the second ten best were two German productions, "Eine Kleine Kammermusik," by R. Grunewald, and "Fishing and Boating," by G. Schneider. All the others in this class were Japanese. It was the considered opinion of the judges that Japanese photography and general camera work are fully up to the best international standards, but that in cutting and editing the films from abroad on the whole were superior.

Japanese entries were almost entirely of a cultural nature suitable for general showing in the educational field, whereas the foreign films submitted were



C. W. Wade, treasurer, Los Angeles Cinema Club

about Amateur Movie Club and member of the committee of judges, gave a few criticisms as some of the pictures entered in the contest were shown. The following are the committee's comments on the two leading winners:

"Some Bryce Canyon," by E. F. G. Chapman—"There is very little we can add to a picture of this quality. It was excellent from every standpoint. A suggestion or two—a few titles in the body of the picture, and placing at the end,



Richard (Dick) Smith, secretary-treasurer, Los Angeles Cinema Club



James H. Mitchell, vice-president, Los Angeles Cinema

mostly of a personal nature in scope, made for amusement and private showing.

The winning films were projected on Nov. 26, in Tokyo, before an audience of 166 members and friends of the Sakata Kagata Riga Kiseka. This was the biggest amateur film show ever held in the Far East. At the time the prizes and awards were distributed by Masao Yamashita, honorary president of the society, and by Genji Kato.

Additional performances also are to be given December 6 and 16 to those members and others unable to be present at the first performance. A further series of projections is scheduled in Osaka and one or two other large cities during January.

Chicago Cinema Club

N EWER flashes, official bulletin of the Chicago Cinema Club, oldest incorporated amateur movie organization in the United States, in its issue for January 1 announces some of the principal designs scheduled for the coming year. Editor S. F. Warner, 1838 Marquette Avenue, Forest Park, outlines the first program.

January 8 there will be a business meeting, with taping and tanning and refreshments properly separated. January 15 the main subject will be "Piters and Their Effect on Your Film," the big talk to be made by Member J. E. Wilson of Almer Coe and Company.

January 20 "Western United States Beauty" will call for a triple feature night. The trio will be offered by Art Josephson, Dr. Cherrow and C. S. Robinson.

January 27 there will be a program much out of the ordinary, a visit for members only to a projection booth of a major theater, where an opportunity will be provided to see how films are handled professionally.

Argentine Cine Club Has Special Showing of Films

ACCORDING to information received from Rene Oscar J. Bonella, secretary of the Cine Club Argentino of Buenos Aires, Argentina, that club, under the presidency of Reneo Evaristo de la Caceres, held a special exhibition dedicated to children, on November 22. The exhibition was divided into three forty-minute sections, and the program consisted largely of sub-standard library films from the Kodak Corp., Kinagraf and other libraries, selected specially for their suitability for juvenile audiences.

The highlight of the final division of the program, however, was the club's own contribution to the Argentine Youth Club's campaign for child welfare, a film entitled "Dificultad e Insuperabilidad" filmed by Club Secretary Bonella and Member Roberto Roberto.

It is to be hoped other clubs will follow the lead of Argentina's organization in adding weather-wise and national campaigns by the powerful aid of amateur movies.

Cinema Club of the Oranges

THE Cinema Club of the Oranges has a nifty bulletin with the title of Torneo. The publication, which now has a score of Volume 4, No. 2, is in four columns, each about 3½ to 4 inches wide and 2½ inches deep. The sheet is 11 by 17 inches overall. In the same before us there are two cuts.

William Murphy, who received honorable mention for his "El Bago Cold Talk" in the Cinematography contest, is a member of the club of the Oranges.

The meeting December 17 was held at the home of President Vanderlipp in East Orange. While officially it was ladies' night the bulletin suggests in reality it's "wove" night.

Three films were shown: "Nova Scotia Fishing Fleet," "Life in Nova Scotia" and "Newfoundland." The Rev. C. A. Platt of the Munn Avenue Presbyterian Church, East Orange, also spoke.

There was a short business meeting preceding the meeting and refreshments following it.

Eastman Issues a New Model Miniature Camera in Retina II

A NEW modern design miniature camera for black-and-white and full color Kodachrome pictures, the Kodak Retina II, is announced from Rochester by Eastman. Regular in size and styling to the original \$25 Kodak Retina I, the new member of the Retina family incorporates a number of technical advances, particularly in lens speed, flexibility of operation and "error-proofing."

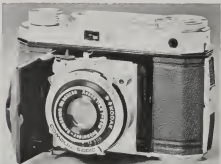
It offers a choice of high-speed monochrome lenses, either f2.0 or f2.8; is equipped with coupled range finder focusing; shutter speeds from 1 fall second to 1/500; body shutter release, and double-exposure-prevention device.

The body of de-lux aluminum alloy, made to a special formula calculated for extra toughness and rigidity. This body is covered with tough-surfaced black microcrystalline leather. Film controls,

exposure-count dial, and shutter release are mounted on a finely-styled stainless steel finished in satin chromum.

The shutter is a Compur-Rapad, marked for nine speeds from 1 second to 1/500 second. Exposures timed at intermediate speeds also may be made between 1 second and 1/500 second (except between 1/30 and 1/25) by setting the shutter-tilt dial between the markings.

Shutter plunger and film winding knob are coupled so that once the shutter is tripped, the film must be wound before the shutter release will operate again. This gives positive protection against double exposures. The film winding knob is halted automatically by a dead-stop device when the proper amount of film for another exposure has been wound into place.



Kodak Retina II miniature camera

Philadelphia Cinema Club Has Best Attendance in Its History

At the regular December meeting on the 14th there were shown for the entertainment of the members four films, three of them with musical accompaniment.

The first was a Castle News film of by-gone days, with a sound background, highlighted with views of the Wright brothers in their first flights, Canaan, Buffalo Bill, Lillian Russell, Andrew Carnegie, William Jennings Bryan and Senator Borah.

The second film was "Circus Days," by A. O. Risch in black and white. The primary views were taken inside the main tent of the Barnum and Bailey Circus. The musical accompaniment for this film was a record by the Circus Band, as timed that it fitted in to the change of scenes and change of acts, as depicted in the film. "Circus Days" is believed to be one of the finest of black and white films ever turned out in an Amateur Club.

"Shining Mountains," by Robert W. Crowther, the excellent Saturday Evening Post illustrator, followed by "Trees," the work of R. W. Bayles, another one of our artistic members, topped off the films viewed by the membership. Both of these scenic films were in color with musical background of an appropriate nature.

R. M. Root, president, put before the membership the details of our next contest. This will be limited to a showing of 50 feet in films, and 30 equivalent in time. Showing will be divided into two groups, one for each of the two amateur clubs, and each member is to put a film into the contest, due for the May meeting.

Beginning with our December meeting, admission of other than members is by card only. That this was a huge success was demonstrated by the fact that the attendance of members and guests were close to 100 persons, the best showing and turn-out the Philadelphia Cinema Club has had in its existence.

The January meeting will be devoted primarily to judging the members are to bring in.

B. N. LEVENE,

Chairman Publications Committee

Seattle 8mm. Club

THE Seattle 8mm. Club held its first annual election and dinner December 7, with fifty persons in attendance during the evening. There were eight deer prizes given by Clyde's Camera Exchange, Eastman Kodak Store, Rex M. Rex J. Warshall and Sons, and Wrenfield and Goldberg. The dinner was held in the Gold Room of the Roosevelt Hotel.

A. O. Jensen was elected president, Charles B. Franklin vice president and W. N. Chance, 126 North Eighth-third street, secretary.

The entertainment consisted of presenting pictures from the vaults of the American Cinematographer and demonstration films exposed by members in and around Seattle.

New Universal Cement

Bell and Howell announce a film cement equally effective on both safety

and standard film. The safety and standard film cements formerly supplied by Bell and Howell are both superseded by the single new cement. It is claimed the new product forms splices that are stronger than the film itself.

The new cement is declared to be much less subject to deterioration than other types because it will not absorb moisture from the air. It could even stand a 10 per cent addition of water without losing its bonding power.

The new product does not thicken the dye in Kodachrome film, and therefore it can be used with the certainty there will be no disintegration of Kodachrome film adjacent to the splice.

ENGLISHMAN ANALYZES AMERICAN FILM MAKERS

WHEN an Englishman sets forth to write a book about American motion pictures, he is often likely to go to one of two extremes: he is likely to unleash the backs of a scurrilous vocabulary in a sustained blast at anything from Hollywood or to fawn all too obviously upon everyone connected with American film.

Eric R. Robert, in his recent book, "The American Film," published by the Mire Press, London, contains neither of these errors. Instead, this author analyzes in a scholarly but none the less interesting fashion the outstanding American productions of the last few years and the styles and abilities of their makers.

Too many works of this type fail to penetrate beneath the surface, attributing sole credit or blame for everything to the director, with the remaining attention lavished exclusively on the players. Not so with Robert.

On the contrary, while he studiously discounts the work of sixty-two leading directors, he gives full and generous credit to the cinematographers as well. For almost the first time since the cinema became worthy of bookish discussion we find a critic not intimately associated with Hollywood giving credit for the visual aspects of pictures not to the director but to the cameraman.

Virtually every member of the American Society of Cinematographers who is engaged in major studio production

cinematography is mentioned at least once in the book, and much space is given to several of the more outstanding members.

In addition, when it is obviously the author's opinion that the cinematographer rather than the director is responsible for such visual details as composition and lighting, the many illustrations, made from production stills, are credited only to the production company and to the cinematographer.

Credit to Risher

There is a worthwhile chapter dealing with the work of the cinematographer in which the acknowledged assistance of Charles Risher, A.S.C., is evident. In it the author gives evidence of a far more careful study of the work and artistic styles of individual cinematographers than is common among lay critics.

Chapters dealing with the work of art directors and players are also included, as are others dealing with the artistic aspects of sound and color.

Robert's reaction to cinematic color is perhaps the least pleasing aspect of his book, for instead of tempering his views with an appreciation of the newness and complexity of natural-color cinematography and the real achievement encompassed in the short time modern color cinematography has been possible, he seems to see more clearly its shortcomings from absolute perfection.

That these shortcomings exist is undeniable, but that the favorable possibilities of color outweigh its faults is the more general opinion among the cinematographic community. It must be admitted, however, that Robert prepared his book too early in the year to have seen any of the advances shown in the most recent color production.

In general it may be said without reservation "The American Film" is to be heartily recommended to members of the camera craft and to all others interested in a truly intelligent analysis of modern motion pictures and their makers.

W. S.

Sydney Invites Juniors

IN a letter to the editor James A. Sherlock, S.A.C., writes:

"If any members of our Junior Society are passing this way I would be pleased to give them any filming equipment possible and the Australian Amateur Cine Society would appreciate any edited films they might bring or send along to our meetings."

Sydney, Australia, Box 2861, General Post Office.

MUST BE PRACTICAL PLAN FOR EDUCATIONALS' DISTRIBUTION

THE production of educational motion pictures is still in an embryonic stage. The importance of this type of picture is just beginning to be realized not only by members of the profession but also by schools and colleges, leading industries and the United States government.

The activity and interest in educational pictures is even increasing, but a practical plan for production and distribution is necessary to serve as an incentive and inspiration to some of our best technicians.

The services of those who are conversant with scientific methods cannot be enlisted unless the compensation is commensurate with their ability and, incidentally, equal to what they command in industrial fields.

The solution to this problem is not very far in the offing, and when the time comes it will create unusual opportunities for those who are best qualified.

The educational field is acknowledged to be a gigantic one. Few, however, seem to be practically and progressively working toward a goal which will place this subsidiary in feature production in its rightful position.

Small so-called educational picture producers have done much to retard the progress of this highly specialized field of endeavor. Definitely, there is a difference in documentary films, industrial motion pictures and educational productions.

Specialized Fields

An organization producing industrial pictures should not attempt to make educational films and vice versa. Also, documentary films are in an entirely different category and it is therefore another specialized field of cinematography, where little if any distribution is necessary.

Industrial films stand alone as promotional or propaganda material; they are classed primarily as advertising and have little educational value. Distribution of industrial pictures is comparatively simple and not so complex a problem as the educational film.

Money has been and is being spent liberally for the production of industrial films, and permits the producers to make excellent material comparable to that of theatrical productions. There are today a number of organizations producing quality films for various commercial enterprises.

These pictures are primarily produced and sponsored by industrial organizations, and are doing the job of advertising for which they are intended.

Educational pictures should stand for what the classification implies. They must reach the peak in flawless production; a criterion for others to follow.

Activity Increasing, But It Is Specialized Field—Trained Men Must Be Paid Full Value in Other Fields

By Reed N. Haythorne, A.S.C.
Washington Staff Correspondent

and comparable to several hours of highly interesting lecture, yet presented in a relatively short space of time.

Superfluous Phrases Out

The lecture or narration must be precise and to the point, shorn of superfluous phrases. The illustrative material must follow along the same channel.

In other words, if the lecture is constructed around a plot, place emphasis on the plot in the picture, and if the sound is that of a bee, depict a bee. Superlatives do not have a place in the production of educational pictures.

Education is indeed a hard thing to sell. How many times have you heard the story, "Oh, I went to sleep while he was talking" or "When I was in college I slept at my lecture classes," and so on?

Many times, no doubt, you have heard it and that the average person has a hard time to that of a fourteen-year-old. With these in mind you are readily aware that you must make the picture interesting enough to hold the attention of the audience, and in simple, straightforward language.

The story that is being told should be narrated and illustrated in parallel union. The illustrative matter must tell the complete story likewise the lecture or narration must tell the same story in a running monologue.

Big Companies Know

If the scenes and presentation of the subject are made in an entertaining and unique fashion with odd angles to picture the subject in its best advantage it is fairly certain the picture will hold the attention desired.

The large production organizations that have for many years been making feature release films for theaters are recognized authorities in the world of entertainment.

There are few producers of distinctive films who are engaged in strictly educational films. In 1936 there were 33,631,540 students going to school every day in public schools in the United States. The colleges and universities of the United States had over 771,000 students enrolled.

The increase since 1932 has been enormous and an approximate estimate of 35,000,000 persons interested in education is fairly conservative. Progress in all the sciences, professions and the various arts has been accelerated to a degree that makes obsolete all previous efforts, and is even forging ahead to greater heights of achievement.

Millions Clamoring for Ideas

There are approximately 35,000,000 students in the United States clamoring for new ideas in the field and there are a number of universities, one of which is the University of Chicago, establishing a president as a new educational idea which adopts the student's optional plan of selecting any course of study and completing it as rapidly as it is possible for him to do so.

Thus, if the student is sufficiently advanced in scholastic attainments, the length of time required for any given course and his ultimate success would depend entirely upon himself.

This is the time to utilize the experience and wisdom of the large producers of theatrical pictures and educational authorities with the definite view of offering these 35,000,000 daily students a stimulating incentive in progressive education in the form of quality motion pictures.

It seems reasonable to believe that this potential market of 35,000,000 should not be overlooked by our most successful producers. Technicians should rally to this splendid cause and promote this field of activity toward a united effort and progression in all specialized fields.

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High School Lad Finances His Films

Running Own 16mm Projector Since 12 Years Old—
Also has 8mm Camera and Projector—Chief
Objective Is Building for Future

By GEORGE OLIVER SMITH,
Weiser, Idaho

LOTS of people say to me, "I'd like to have a movie outfit like yours, but I couldn't afford to buy the films." I thought that, too, at first. I had to find a way to finance my films since I am only a junior in high school and my folks have plenty of other places for their money.

I have been running a 16mm. projector (my own) since I was twelve years old and a 8mm. camera (a borrowed one) since I was thirteen. Since then I have bought an 8mm. camera and projector. I earned all the money I have invested in these machines. They are worth over \$100.

We lived on a farm until last fall. I had a little theater in a long shed where my partner and I ran a great many shows for the neighborhood, school and clubs. Sometimes these were pay shows (5 cents) . . . if we had to rent the film if the films were free we gave free shows and usually got enough tips to pay the postage or express to return the films.

We showed educational and comic films from the Goodyear Tire Company, the Agricultural College, Northern Pacific Railroad and many other sources. We did all this before we took any pictures of our own.

Some friends on route from California who had taken several reels of film asked us to run films for them. Other people came from different places who had taken films but had no projector. We were surprised how good all these pictures were, and were tempted to try to take some ourselves.

The First Home Pictures

So we saved gate receipts to cover the first film. We took our Christmas party, snow scenes, and things about home. Needless to say we treasure this picture, and it was all good stuff.

Several business men had been out to see my shows and some of them suggested that they would pay for the film if I would take some pictures of their establishments. I went to see six business men. I offered them fifteen to twenty feet of film for \$1 and I did not get turned down once.

I took first a picture of the front of the place of business, then some activity about it, and some close-ups of the manager or office boys. I had the Ford Agency, the Chevrolet Garage, Camp-

U-Best, The Mill, Implement Company, a dairy, and an auctioneer.

These customers were all pleased and their film runs at every show. Others planned for one or two reels. For one company I took "Men About Town" to run with advertising on free shows during a three day radio. This film gets a big cheer.

Doing Latin Comedy

I have been called to take pictures of peach orchards in color, of brandings on hog ranches, of Sunday schools, athletic meets and of political candidates. Last fall I got a trip across the state to film state candidates for one of the major parties. I have some interesting film of Senator Borah both posed and candid, as he was riding at a rodeo.

Since I have my 8mm. outfit and the films are less expensive many women have the sake pictures of their parties or their children.

At school we are doing a real pro-

duction—a Latin comedy, and the Latin teacher is financing the film.

I now have so much film of local interest that I hardly ever send for rental film. "How much will you charge to put on a show?" I am asked almost every week. I usually charge only expenses as I would rather have the good will of the people than try to make money until I become professional.

Our ownership consists of only about five thousand persons. In the high school there are 300 students. You might think these would be little of interest to take in the way of pictures, but I think there is plenty. Near Weiser there are all kinds of wonderful scenery, of mountains, lakes and canyons. There are round-ups and celebrations. Then there is Sun Valley, (I hope to get there some day.)

I did get some very good pictures of President Roosevelt on his recent trip through the state. Another high school boy and I cut school, and by having a placard "Press On" on the side of his car we were able to join the official caravan.

Close-up of President

It stopped at the prime corn field in the Parma Valley and I got down on my knees so I would not obstruct the President's view and shot some good close-ups of him waving his hand out over the field of stacked aurens saying, "I never saw anything like it in my life." You can almost hear him say it.

Movies of the high school bunch, especially track meets, games, etc. always pay good dividends.

When Wallace Beery visited in Weiser I helped run some of his pictures that he had taken at the Pendleton Round Up and while hunting. He is quite a home movie fan, but never has plenty of money and he doesn't have to be careful to save film, he takes lots of pictures that I couldn't afford to take.

He edits out the parts that are not so good. So maybe it is a good thing to be poor. It makes one more selective in taking pictures. One learns faster when he has to think of the price of each foot of film.

I haven't done much yet compared to what I intend to do, but I have had so much pleasure with so little expense out of my movies that I want to recommend them as a profitable and enjoyable sport.



George Oliver Smith, high school lad of Weiser, Idaho, as he was a year ago.

Make-Up Man Can Do Much to Help Cinematographer

(Continued from Page 15)

all made up, while the cinematographer's task is much easier.

I hope I may be excused for mentioning what I consider a real achievement in corrective makeup. In "The Lady of Erzer Zola" Paul Marc's characterization shows Zola at a number of ages from young rankled to old age.

Putting On Weight

In the early sequence he plays Zola at a time when he weighed approximately Marc's normal weight of 240 pounds, in the latter part of the picture, Zola has aged and put on weight until he weighs approximately 320 pounds.

When these scenes were made Marc's weight was still the same—250 pounds—and no cheek defenders, padded makeup or clothes pads were used, yet he looked a convincing 320 pounds on the screen. This result was achieved simply by an elaboration of the fundamental process of corrective make-up.

Corrective make-up has been applied with equal success to Technicolor make-up. The procedure is fundamentally the same, though we use a special color make-up we designed ourselves, as we were not satisfied with anything commercially available.

For a color make up, however, we begin by studying the player's face under a blue-green mercury vapor lamp.

This of course shows up any discolorations of the skin, even more little blotches invisible to the eye. These are concealed by applying a neutral gray grease paint, after which we can build the color make-up in the usual manner.

It may be mentioned that we have found it necessary to make a fixed rule that feminine players appearing in Technicolor pictures must not wear ordinary lipstick at any time while they are on a color film.

Range Limitations

The reason for this is that all lip rouges for street wear contain a definite amount of blue pigment, invisible to the eye, but painfully visible in the color cinema. These lip rouges are

also of the indelible variety, they cannot be removed, as can ordinary make-up, by cold cream and washing. The pigment must wear off.

We have feared that even after several days during which no such rouge is applied there is still enough of this blue pigment remaining to show through the Technicolor make-up and give the lips a bluish cast in the picture.

Therefore, an actress in a Technicolor film at our studio is allowed to wear ordinary lip rouge for her usual make-up away from the studio. Instead, we provide a special pure pigment lip rouge for street wear. It is not redible, but this minor inconvenience is offset by the improved appearance of the player.

Meaningful power of pigments brings to mind the matter of so-called "make-up poisoning." There is actually no such thing. The ingredients of any of the really standard theatrical make-up preparations are absolutely non-toxic.

Occasionally, however, you will find an individual with an unusually sensitive skin, whose body chemistry may be susceptible to some component—base or pigment—of the make-up. In that case, we carefully study that individual's skin, and we have always been able to compound a suitable make-up.

Hits One in Ten

The ratio seems to be about one in ten as affected; I have several times made tests, giving ten girls a make-up preparation for use, and studying their reactions. Usually nine of the ten would use the product with no ill result.

Thus, incidentally, does not apply to the so-called "bold face" make-ups some stars have lately tried. These make-ups are definitely not safe. The thinnest little scratch or open skin bluishness of the tiny metallic particles an opportunity to enter the system, where they can and do cause the very serious skin malady known as dermatitis.

In addition, it is highly doubtful if these make-ups really enhance the appearance of the wearer, and I feel certain they add to the troubles of the cinematographer.

In conclusion, I hope that my remarks may in some way help to give cinematographers a better understanding of what make-up artists are striving for. It is only as both cinematographer and make-up artist learn to understand each other's aims and problems that true co-operation can be established; and there are few other phases of production in which such co-operation is as desirable, for after all both cinematographer and make-up artist aim at the same goal—developing and enhancing the screen personalities of all players.

Fred C. Ede, internationally known amateur cinematographer, in a recent note to the editor of this magazine transmits welcome word that "I trust from time to time I shall have occasion to furnish you news of the not considerable body of Japanese amateurs for whom I am liaison officer to the English and American amateur movie magazines."



Here are Tyrone Power and Alice Faye, two of the leading players in Twentieth Century-Fox's "In Old Chicago," in which Edward Dmytryk was director of photography. The still was photographed by Eugene Keane.

HERE'S THE ANSWER

Lighting in "Garden of Allah"

IN your issue of January, 1937, there is an article on "How in Short Kodachrome Light Effects," by Harold Rosson, A.S.C. In one paragraph it is stated one of the most effective scenes in "The Garden of Allah" was one where Charles Boyer admits to his wife he is a scapegrace monk. In this scene his face is strongly illuminated, against a sky lighted by a setting sun. Well you please tell me if it was the sun or artificial lighting that caused the illumination on the face?

L. L. M., Teft, Calif.

We discussed this same matter with Mr. Rosson at the time the article to which you refer was written. The scene in question was done on the studio stage, by artificial light. The background was a painted drop, painted very carefully to imitate actual Technicolor scenes made on the desert location near Yuma, Arizona.

The lighting was effected by the arc lighting equipment specially developed by Melvyn Richardson for Technicolor lighting. These lamps give an absolutely colorless white light of high intensity, absolutely identical with the spectral distribution of normal daylight, which makes it possible to shoot color interiors and exteriors without any change in camera, film or processing.

In sub-standard filming with Kodachrome, this is of course impractical, so the Type A Kodachrome film was devised. This has a specially modified color sensitivity to reflect the light of Photoflood lamps, which, to the color film, is much redder than natural daylight. Effects similar to the one you mention can be made indoors with Photoflood lighting and Type A Kodachrome film.

Meters and Speeds

I am planning to purchase an exposure meter soon, but before doing so I would like to have the following questions answered.

1. What is the definition of "film speed"?
2. What is the definition of correct exposure?
3. How can I determine the film speed of any film at home?
4. If the speed of a film is 32 and the film is hyperexposed to double its speed, will the film speed then be 64?
5. What is the difference between the Weston and Schneider ratings?
6. How can I change from Weston to Schneider ratings and vice versa?
7. What are the different types of exposure meters and their advantages?
8. I understand there is a campaign under way to request the film manufacturers to place the film speed on

the box in which the film is sold. I would like to say I am in favor of such a plan.

C. F. Long Island City

Without going into unnecessarily technical detail, "film speed" can be simply defined as a quantitative measure of that film's overall sensitivity to light. There are many other factors to be considered, however, in addition to overall sensitivity.

The film's sensitivity to light of various colors is equally important in reaching a usable final figure, and so, too, is the color of the light used to make an exposure. That, for example, is why the Weston engineers establish one speed rating for daylight, which is a uniform mixture of light rays of all colors, and another for incandescent (Mallard) light, which is deficient in blue and ultra-violet, and strong in yellow, orange and red.

The processing or developing is yet another variable which affects film speed. This can be proved by making a current, metered exposure on a given film, then cutting the film into three pieces, each of which is developed with a different developer.

Film Sensitivity and Meter

If, for instance, Eastman's D-72 formula is considered the normal agent for developing that film, the action developed in it would give a normal exposure result, a section developed in a five-grain solution like most of the paraphenylenediamine formulas would give an apparently underexposed result; while a section developed in a third solution might well give an overexposed result.

Another factor, perhaps the most vitally important in the practical work of the average cameraman, is the relation of the film's sensitivity to that of the meter. The familiar Weston speeds, for example, are calculated with direct reference to the color sensitivity and the overall sensitivity of the Weston photonic cell used in that meter.

If it were possible to replace the Weston cell with a different type of photoelectric eye, any given Weston film speed rating might very probably be very considerably inaccurate due simply to the meter's changed color-sensitivity.

Correct Exposure

Correct exposure may most easily be defined as that exposure which places the extremes of highlight and shadow within the characteristic exposure limits of the film; in other words, which places the highlights at such an exposure point that they are not "blacked" or overexposed, and the extreme shadows exposed so they will retain ample detail

rather than being merely areas of no exposure.

The extent to which exposure can be varied up and down while still keeping the exposure extremes within these limits is known as latitude. In the average modern film this may allow some considerable leeway, often an exposure range between shadow and highlight extremes of 1:128 is possible, while the brightness range of three extremes in average pictures is seldom as great.

As has been mentioned, correct exposure is relative, depending to a great extent upon the developing or processing of the film.

Determining Film Speeds

There are many specific methods of determining film speeds, but the practical cameraman uses is of course most interested in obtaining a speed-value workably related to the meter he uses. For this, the simple method of trial and error is probably the most practical.

Make an exposure using a value you think should be approximately correct; then make several more exposures under identical conditions, using values higher and lower than that. Give the exposures identical processing. The results will show you what speed is right. In using an standard reversal cine film it is a good idea to ask the laboratory not to make any attempt to equalize your exposures in their processing.

However, speaking generally, there is very little real need to make such experiments yourself, since the Weston Company each year—sometimes oftener—issues a folder listing the Weston speeds of all available materials.

The current one lists more than 167 different types of films and plates for use in various cameras and still photography, including 37 types of reversal and negative-positive films and beam cine film and 5 types of natural color processes.

Speeds and Hyperexposure

Granting that the method of hyperexamination you use does not alter the film's color balance, your assumption would hold true. If, as is generally the case, hyperexamination does upset the color sensitivity balance, the hyperexposed film speed would not necessarily be the numerical double of the original value.

Hyperexposing almost invariably increases red sensitivity more than that to any other color, so if you hyperexposed an emulsion originally sensitive only to blue, you would merely make it more nearly panchromatic, and the overall speed increase would be very small.

If, on the other hand, you first panchromatized the film, and then hyper-

standard it, or used a photoelectric method to start with, the meter speed increase would be much greater. For exact details, the makers of the meter you use and of the film you hyperexpose will be glad to tell you exactly what meter speed is in your specific case.

Weston and Scheiner Speeds

The Scheiner speeds, in common with the H&D speeds, are fundamentally based on sensitometric measurements, the Weston speeds are based on the response of the Weston photoelectric cell. The Scheiner speeds, therefore, are not precisely adjusted to practical use with any specific meter, though a number of meters (especially foreign ones) are calibrated to work more or less effectively with Scheiner speed-calings.

In general, while in the Weston system the numerical value of the speed-rating is doubled to indicate doubled film sensitivity, in the Scheiner system an increase of 3 in the rating indicates doubled speed. Thus in the Weston system, if a given film has a speed of 25, one twice as fast will be rated at 50; in the Scheiner system, if a film is rated at Scheiner 20 (which is not the same as Weston 25), one twice as fast will have a speed of Scheiner 33.

Further, many meters and meter-equipped cameras purchased abroad and brought into this country by individuals (as against models made specially for use in America) will be calibrated for a sub-variation of the Scheiner system calings for yet different settings. This is usually 6 degrees higher than is the case for meters built for the American market.

For example, many Contaflexes purchased abroad are calibrated so that for a given film one must use a speed rating of 25, as against an American-calibrated setting of 20.

Here is the Weston Company's published table for correlating Weston and Scheiner speeds, which, you point out, is strictly accurate only for emulsions having closely similar characteristics.

Scheiner	Das	H&D	Weston
14	7 1/2	33 1/2	3
15	8 1/2	35	4
16	9 1/2	35 1/2	5
17	10 1/2	37 1/2	6
18	11 1/2	40	8
19	12 1/2	50 1/2	10
20	13 1/2	45 1/2	12
21	14 1/2	50	14
22	15 1/2	55 1/2	20
23	16 1/2	57 1/2	24
24	17 1/2	60 1/2	32
25	18 1/2	65 1/2	40
26	19 1/2	75 1/2	50
27	20 1/2	75 1/2	64

The manufacturers of the Photocolor meter publish an excellent little booklet which discusses this question in detail. It is obtainable from the distributors and from most photographic dealers for a nominal price.

Meter Types

To detail all the meter types would require more space than is here available. In general, disregarding the so-called meters which are simply pre-

calculated charts, there are three principal types, those which measure the light by its action in a given time upon a standard light sensitive material, usually a sensitized paper; those which compare the light with a standard light or with a graduated scale, and those which measure either the light reflected from the subject or from a built-in white surface or "artificial highlight" by means of a photoelectric cell.

Examples of the first class include the Watkins meter; of the second, Bell & Howell's photometer; the third, the Weston, and Photocolor meters for the first type, and the Searhurst Ans for the second.

While we cannot of course recommend any specific meter here, it is pretty

generally conceded that the more automatically the meter itself measures the actual light from the subject and the less it relies upon the human element in visually comparing densities, illumination and the like, the more accurate it is likely to be.

Film Speeds on Containers

We agree with you that it would be of practical advantage to the user if the manufacturers could be persuaded to put the film speed ratings of their products on the boxes.

But practical considerations seem to put the realization of this is some distant photographer's Utopia.

In addition, some manufacturers are disinclined to place the stamp of their approval on any arbitrary system, due to the number of variables involved. Finally, there will always be some manufacturers who will be overoptimistic about their own products; a dozen or fifteen years ago many manufacturers of plates and films published the H&D speeds of their products, and some of these mistakes owe it to favoring their pet products; it proved most disconcerting to the user to buy a box of plates the manufacturer of which measured the speed under special, extra favorable conditions, might publish a rating of, say, 1700 for a product which in normal, practical use could not be fairly rated above, say, 900 or 1000!

Ray June Names Committee

Ray June, as chairman of the photographic section of the Yellandiana Branch of the Academy of Motion Picture Arts and Sciences, has appointed the following committee to consider any changes in the rules governing the camera award which may seem desirable for this year.

Ray June, chairman; John Arnold, Joseph August, Norbert Brodner, Edward Compagno, Arthur Edeson, George Folsey, Fred Gale, Hermit Goodall, Byron Haskin, C. Roy Haster, Thomas Ince, Charles B. Lang, Jr., George B. Meskes, Jr., Virgil Miller, Victor Milner, Ira Morgan, J. M. Nickolson, L. Williams O'Connell, George Robinson, Roy Searwright, George Seal, Karl Struss, John Swann, Alice Thompson, Joseph Valentine, Joseph Walker, Vernon Walker, Ray Wilkinson and Gordon S. Mitchell, manager of the Academy technical bureau.

Books Received

"Photographic Hints and Gadgets." Edited by Frank R. Frappé and Franklin J. Jordan. American Photographic Publishing Company. Boston: 1937. \$2.50. 326 pp. 253 articles and nearly 500 illustrations.

"Fires and School." A handbook in Moving Picture Evaluation. By Helen Reed and Richard Lewis. A publication of the National Council of the Teachers of English. D. Appleton-Century Company Inc. New York: \$1.12. 192 pp. 57 illustrations.

These two volumes will be reviewed in the February issue.

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True Stereoscopia and Its Requirements

(Continued from Page 14)

a picture from a series of positions in an arc around the object and showing these so shaded by a vertical grid that the observer's right eye sees a series of vertical strips composing the right-eye picture only and his left eye sees another series composing only the left-eye picture.

Certain viewing positions for this type of work are unsuitable, and taking the pictures is difficult. Registration of the strips in such a pattern must be extremely accurate, and it is difficult to get the required detail for each picture.

Not Practicable

All these considerations militate against its ever being of broad commercial usefulness. Objects can be photographed in the laboratory and shown there, however, and the results stand as a testimonial to Ives's careful work and to his ingenuity.

The second general technique of stereoscopic reproduction involves the use of filters so chosen that with a stereoscopic pair of pictures made visible respectively in two kinds of light, each eye sees only the picture intended for it. This method divides into the use of complementary colors and the use of polarization.

Using red and green glasses, Neering and Leventhal have produced the extremely entertaining series of pictures known to the public as "anaglyphs." In France, Lumiere, of color-plate fame, utilized two colors, in his new yellow and blue, to produce stereoscopia in motion pictures. It seems that the possibilities of this type of showing have been pretty thoroughly explored.

The disadvantages are three: (1) When two colors are used to produce stereoscopia, there is bound to be retinal rivalry between the eyes, especially in viewing large, clear areas such as of the sky or water, and it is doubtful whether long presentations (that is, longer than ten or fifteen minutes) can be watched by a normal audience without some eye strain.

Not as Absorbent

(2) Many authorities, of whom Troilard is one, say that such anaglyphs produce special separations suggesting the flats in stage scenery. They do not produce rotundity or solidity; that is, the realism of stereoscopic sensation seems to be absent.

(3) Such a use of color to produce stereoscopia precludes the use of varied color in the pictures themselves to enhance the suggestion of reality.

With the method depending upon polarization, work was done by Anderson as far back as 1868. Using piles of glass plates, he showed that three-dimensional pictures obtained by this method were a laboratory possibility; but his necessary use of glass plates made

them economically and practically an impossibility.

With the advent of Polaroid, the thin polarizing sheeting that can economically be produced in large areas, there has been a new interest in the field. Professor Kennedy of Smith College, at the request of the Carnegie Corporation, has been for the past two years studying its use in the serious study of sculpture and art in general.

Among others working in the field at present are Professor Huxton at Harvard and Professor Rife at the Massachusetts Institute of Technology.

The present is an auspicious time to consider the motion picture field and the subject of stereoscopic motion pictures. Color movies are today better than ever before and show promise of still greater improvement. Polaroid is now available, and this permits for the first time color movies in three dimensions.

There is considerable laboratory evidence to indicate that the ordinary run of color-film, where stereoscopic, is considerably more effective than the best single-eye color pictures.

Stereoscopic Color Effective

Kennedy points out several good reasons: (1) Is nature the respective highlights are in slightly different positions for the two eyes. This is part of our natural impression of the world. (2) An effect is produced upon any object by the kind of light illuminating the object.

To give an example, suppose we have

a statue of pink or black marble in a room in which the color is predominantly green. In such a case, one will have not white reflections, but green reflections.

Now this experience is common, and our eyes are able to remove, so it were the green reflections from the pink marble and see the marble as it really is, whereas one is unable to do so with a single picture of such a pink marble statue on which there is a green reflection.

This is a good experimental reason why, no matter how good color reproduction may become, there always will be dissatisfaction in the representation of colored objects by non-stereoscopic "flat" movies. All objects have to be illuminated, and from all directions there is more or less reflection of each illumination. Gold and lustrous objects generally have been the despair of color photographers.

This again is partly due to the fact that these are essentially two-eye phenomena, the lighting and color effects in one eye differing from those in the other in actual viewing.

Considerable advance has been made in devices for taking and showing stereoscopic pictures on a single film, and present experiments are very promising.

Learn Limitations

There are, very naturally, some problems to be cleared up. Photographers need to learn (1) limitations, or what they should not expect to do with stereoscopia and (2) still more important, what its use means in opening up new possibilities—in other words, the technique of using this new tool.

There is some evidence to show that a new sense of space must be acquired and a much more painstaking and thorough use of the fact that space is now an ally, not something to be avoided or faked. The color possibilities deserve very careful study, and undoubtedly a new lighting technique will be needed to supplement what is already known and being used.

In particular, this is a very powerful tool for greater reality in close-ups. What were flat surfaces now become solid, plastic objects. Stereoscopia provides the ideal medium for rendition of shades, the finest wrinkles, the texture of the skin—all the details that, summed up, create the impression that one would actually have if he were really experiencing a close-quarter's reaction to the person or actor.

In all probability, many long and multi-distance shots that were previously required to give the sense of space will now become unnecessary. Conversely, more long shots that had to be avoided because of the difficulty of showing the actual space involved will now be a possibility in the picture technician.

All in all, it presents a very interesting and exciting medium for imaginative workers to utilize.

These are the problems and interests of picture taking. Theaters will need



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1. Can I USE IT ANYWHERE?

The Da-Lite Challenger Screen has a tripod and can be placed anywhere.

2. Is it EASY TO SET UP?

The Challenger can be set up in less than 15 seconds.

3. Is it ADJUSTABLE IN HEIGHT?

The fully-opened Challenger can be adjusted in height for any projection requirements.

4. Has it SQUARE TUBING?

The Challenger is the only screen with square tubing in the center rod and extension support. It holds the screen and case rigid and keeps the entire picture in perfect focus.

5. Is the HANDLE CORRECTLY MOUNTED?

The leather handle of the Challenger is mounted on a sturdy bracket which encompasses the square tubing and the case—an exclusive patented feature.

6. Has it the RIGHT SURFACE?

Unless where or when specified, the surface of the Challenger is glass-headed, which gives the brightest, clearest pictures, yet there is no glare—no sparkling!

7. Is it BUILT TO LAST?

The handle on the Challenger glass-headed screen are guaranteed not to shatter off. The mounting is built throughout of quality parts for rigid support and long life.

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